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George Herbert Mead

ON SOCIAL PSYCHOLOGY

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Selected Papers

Edited and with an Introduction by

ANSELM STRAUSS

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Contents

INTRODUCTION *by Anselm Strauss* *vii*

PART I

1. Evolution Becomes a General Idea *3*
2. The Problem of Society—How We Become Selves *19*

PART II

3. The Nature of Scientific Knowledge *45*

PART III

4. Mind Approached through Behavior—Can Its Study Be Made Scientific? *65*

PART IV

5. The Process of Mind in Nature *85*

PART V

6. Mind *115*

JUN 6 - 1968

PART VI

7. Self 199

PART VII

8. Society 249

PART VIII

9. Auguste Comte 285
10. Cooley's Contribution to American Social Thought 293
11. Henri Bergson 308

PART IX

12. History and the Experimental Method 319
13. Time 328
14. The Objective Reality of Perspectives 342

BIBLIOGRAPHY

The Writings of George H. Mead 355

Introduction

WHEN George Herbert Mead died in 1931 at the age of sixty-eight, he had not published a single book. Indeed, he had published few major papers for someone who would gain recognition posthumously as one of the most brilliantly original of American pragmatists. During the decade before his death, sociologists at the University of Chicago, where Mead taught philosophy, discovered what original contributions Mead was making to that branch of their field known as "social psychology." Graduate students in sociology flocked to his classes and later were instrumental in introducing his writings on social psychology into the standard sociological literature. His concepts became common property among sociologists; his lines were quoted freely in textbooks, and his pages were reproduced in readers designed for mass student audiences. Through the sociologists, social psychologists who were trained in psychology departments also discovered Mead. While his point of view can hardly be said to be a dominant influence on American sociology and social psychology since World War II, his impact continues to be felt. Moreover, he remains an oft-quoted elder statesman in both fields.

Only part of his intellectual approach, however, has been incorporated into contemporary work. Although his words are reproduced accurately enough, their sense is most often miscontrued because they have been interpreted from viewpoints other than his own. Mead's position was radically different from that of most social psychologists and sociologists who have quoted him or in-

corporated his thinking into their own systems of thought. Part of my purpose in writing this introduction to selected pages of his work is directed at correcting those misapprehensions of Mead's position. I wish also to suggest that a close reading of Mead can make him more than a standard bibliographical item for the graduate student's prelims. Read a bit more closely—and read more extensively than his *Mind, Self, and Society*—Mead can yield directives rather different from many offered in the sociological market. By directives, I do not mean a few "insights" or even a few ideas verifiable with careful research. I mean that his writing remains genuinely exciting. He can still stimulate new research and theoretical enterprise.

American sociology from the 1890's until World War II was dominated by the work of men at the University of Chicago. Although Sumner was at Yale, Ross at Wisconsin, Cooley at Michigan, Giddings at Columbia, and Sorokin later at Minnesota and Harvard, the massed graduate faculty at Chicago, along with its former students, was the major influence upon prewar sociology. The Chicago department and its organ, the *American Journal of Sociology*, were organized approximately when the University of Chicago itself began. That university was, from its outset, to be a graduate institution, for President Harper had deliberately raided competitive scholarly establishments with the express aim of creating the country's most influential graduate departments. Sociology during its earliest years there included at least two outstanding scholars, Albion Small and W. I. Thomas; and in neighboring departments were men like Dewey and Tufts. Within the decade, a star-studded faculty had firmly established Chicago as a dazzling intellectual center.

Mead came in 1894, at John Dewey's invitation, to the Department of Philosophy, remaining until his death. His influence upon the field of sociology must be attributed—especially in light of his scant writings—to the evolution of sociology at Chicago itself. But the nature of his influence is also linked with his own intellectual career. It is to the latter consideration that I turn first.

A striking perspective of Mead's career and influence can be

got by comparing him, however briefly, with Dewey. Dewey was born in 1859, Mead in 1863. Dewey published his first book in 1886, when he was twenty-seven years of age, his second in 1888, two more in 1894; and at forty-three, he was acclaimed for his great volume on experimental logic. His continued regular and voluminous publication on an enormous range of scholarly and public subjects is brought home to us by the posthumous book-length bibliographical itemization of his writing. Mead's output was much more restricted in range, being devoted almost entirely to philosophical and psychological issues, and including a relatively few articles on education, particularly as it related to science and social reform. He was forty before his first major paper appeared (he had published only two previously, on education). Whereas Dewey became known to the general public for his educational views during the nineties and the following decade, Mead was listed in *Who's Who in America* only in 1910 (about seven years after Dewey) because of his full professorship at Chicago. He never came to general notice, except perhaps on the local-reform scene. He did not become, and probably had no wish to become, the spokesman for liberal causes that made Dewey such a deservedly conspicuous figure on the national scene. As for recognition by philosophers themselves: as late as 1912 Ralph Perry, who later edited William James's letters, failed to mention Mead in his *Present Philosophical Tendencies;* and in James Pratt's review of pragmatism (1909), Mead's early contributions to that movement were also overlooked.[1] Mead finally had his books published for him, as it were, by his students, who either pulled together their collected notes (as in *Mind, Self, and Society*) or made available his own notes and unpublished writings to the intellectual community.

One of the intriguing biographical questions about Mead, then, is his reluctance to publish a major volume—and in a field where books are a staple commodity. Dewey sheds some light on this matter in remarks delivered at his friend's funeral and later published in Mead's *Philosophy of the Present.* (Dewey's daugh-

1 (New York: Longmans); *What Is Pragmatism?* (New York: Macmillan Co.).

ter, Jane, later noted, "The Meads remained the closest friends of the Deweys even after the removal of the Deweys to New York, until their death.")[2] Dewey commented that while "Mead was an original thinker, he had no sense of being original. Or if he had such a feeling he kept it under." He also noted Mead's characteristic "great originality and unusual deference to others. . . ." Yet Mead's *Philosophy of the Present* betrays a rather clear consciousness that he was pushing pragmatism in previously unexplored directions, and a number of passages in his last work, published in *The Philosophy of the Act,* show him in a critical posture even toward some of Dewey's positions. In his social psychology, developed fully during the 1920's, he certainly must have recognized his own originality. Dewey knew it and undoubtedly conveyed some of this knowledge to Mead. Again I quote Dewey's daughter: "Since Mead published so little during his lifetime, his influence on Dewey was the product of conversations carried on over a period of years and its extent has been underestimated." Indeed, Dewey directly took over Mead's special development of social psychological ideas and "made them a part of his subsequent philosophy, so that, from the nineties on, the influence of Mead ranked with that of James." We should not be astonished to learn that James was also Mead's teacher, along with Royce. Probably more important than Mead's humility and belated recognition of his own genius was his slight interest in immediate fame, combined with continuous—and possibly laborious—refining and extending of his ideas.[3]

2 Jane M. Dewey, "Biography of John Dewey," in Paul A. Schillp (ed.), *The Philosophy of John Dewey* (Evanston, Ill.: Northwestern University, 1939), pp. 25–26.

3 Jane Dewey implied this when she wrote that he "was continuously reworking his ideas so that most of his work was published only after his death." Helen S. Perry, the biographer of Harry S. Sullivan, has remarked to me that she is struck by the similarity between Mead and Sullivan insofar as neither published much while alive and both seemed constantly to be working over their ideas, possibly too intensively or rapidly to pause for publication. Both men were fortunate in having devoted students who got those ideas into print posthumously. Sullivan, incidentally, knew of Mead's work through Sapir, an anthropologist-linguist at the University of Chicago.

Whatever the explanation for Mead's scant publication during his lifetime, it meant delayed recognition by philosophers. His impact on sociology and social psychology came earlier. One reason, already alluded to, was that Chicago sociologists carried his ideas from the classroom into their working lives (and as Charles Morris has suggested, into their personal lives also). Curiously enough, it was not until the twenties that the sociologists really seemed to have noticed Mead. For instance, W. I. Thomas, who as early as the first issue of the *American Journal of Sociology* in 1894, was urging the inseparability of social psychology and sociology, seems not particularly to have drawn upon Mead's thought, although the two men were university colleagues until Thomas left academic life toward the end of World War I. Likewise, Robert Park and Ernest Burgess included none of Mead's writings in their 1921 reader-text that educated the Chicago graduate students for almost two decades. Park was the great figure in the department during the twenties. Though drawing earlier upon Dewey's ideas about communication, he probably was not greatly influenced by Mead; yet some of his students were. But the chief link in the twenties and thirties between the sociologists and Mead was perhaps Ellsworth Faris, who introduced students directly to the writings of Dewey and Mead. (Dewey had come to the sociologists' attention, not only through early writing on communication and education, but through his 1922 lectures on social psychology.)[4] Certainly not all of these students read or heard Mead, since there were several streams of faculty influence in the department. An autobiographical note will illustrate that last point. Before I went to Chicago as a graduate student in 1939, I had been directed to the writings of Dewey, Thomas, and Park by Floyd House, who had been a student of Park in the early twenties. House never mentioned Mead, that I can recollect. But within a week after my arrival at Chicago, I was studying Mead's *Mind, Self, and Society,* directed to it by Herbert Blumer, who as a young instructor had taught Mead's class after Mead's unexpected death.

By 1939, Mead's writing was already getting a fairly wide

4 *Human Nature and Conduct* (New York: Holt, 1922).

reading from sociologists, and so he began to enter into the mainstream of sociological thought elsewhere. He began to become *the* social psychologist for sociologists—as evidenced, for instance, by his later appearance in the standard chapters on social psychology and personality included in sociological textbooks. Why the sociologists found his writing so useful is exactly the question posed some pages ago. A partial answer to that question, perhaps, is that in the thought of leading sociologists a focus upon psychological aspects of society had long been central. But that answer, I would contend, is only partly satisfying. We must take into account that only certain features of Mead's thought were incorporated into sociology, and we must ask why.

Almost exclusively, sociologists lit upon Mead's ideas about socialization, notably his concepts of "generalized other" and his rather strikingly socialized "self." These ideas appealed in the twenties and thirties because sociologists found them handy ammunition against biological explanations of behavior. Later they found Mead's notion of self not only an effective counter to Freudianism and to individualistic psychologies but also a useful way to think about the socialization of group members. By a curious irony of history, Dewey had earlier helped to fill those functions for sociologists; but since, in fact, he had never worked out Mead's kind of detailed discussion about socialization, his writing today does not appeal much to socioligists.

In general, I would argue that what sociologists—including such widely read functionalist theorists as Parsons, Davis, and Merton—selected from Mead's writing was very restricted and pertained mainly to how culture and norms got "internalized" into the person, that is, how self-control was a reflection of social control. Mead's treatment of the self as a process was transformed into something much more static, in accordance with the sociological view of internalized social control. The "generalized other" became just another way of talking about reference group affiliation, and Mead's notion of role tended to be reinterpreted to fit with the structural concept of status and its associated role-playing. It is even possible to maintain that sociologists, who tend principally to be social determinists, read Mead as if he too were

a social determinist, although his reiteration of the potential influence of individuals upon society should have warned against any such interpretation.

Whether the main drift of Mead's thought was reinterpreted is perhaps debatable, but the selective attention given it is not. Quotations from Mead are almost always taken from the "self" section of *Mind, Self, and Society*—mind and society getting short shrift! Mead's remarkable treatment of time—hardly touched upon in that volume but treated extensively in *Philosophy of the Present* and in *The Philosophy of the Act*—has not been mined for its relevance to sociological concerns. His concept of perspectives, again worked out in much detail in those volumes, has not penetrated sociological thinking much nor has its implication for social change been understood. His strikingly processual view of social organization has yet to receive that elaboration which would freshen, and perhaps transform, more traditional views. His philosophic handling of the relations between permanence and change—that is, the problem of continuity—surely will have its proper impact on sociological thought before long.

The richness of Mead's writing for sociological enterprise can only be suggested in this brief introduction. Perhaps three examples will suffice. Let us take the matter of "time," in which recently there has been renewed sociological interest.[5] In general, much of the sociological writing on organizations leaves their temporal features unanalyzed. When handled explicitly, the focus is upon such matters as deadlines, scheduling, rates, pacing, turnover, and concepts of time which may vary differentially by organizational position. The principal weakness of such analyses stems from an unexamined assumption that the temporal properties worth studying pertain to the work of organizations and their members. For instance, the work-time of personnel must be properly articulated—hence deadlines and schedules. Break-

5 Cf. Wilbert Moore, *Man, Time, and Society* (New York: Wiley, 1963). My own discussion of time owes much to collaboration with Barney Glaser and to earlier work with Rue Bucher, Leonard Schatzman and Melvin Sabshin.

downs in this temporal articulation occur not only through accident and poor planning but through differential valuation of time by various echelons, personnel, and clientele. But a close reading of Mead suggests that the temporal order of the organization be analyzed in terms of a much wider range of temporal dimensions; for, as stated by Mead, perspectives imply temporality.

One way of translating Mead's conception is to take seriously the idea that people bring to any organization their own temporal concerns and that their actions on the organizational site are profoundly affected by those concerns. Thus, in a hospital, one should study not only the organization of work-time (schedules, deadlines, timing of work shifts) but many other considerations deriving from more subtle temporal concerns. For instance, we might scrutinize the previous hospital experiences of patients and personnel (their hospital careers), their experiences with various types of illness (their illness careers), their personal careers, and the highly personalized conceptions of time evidenced, for instance, by dying patients. The family's temporal concerns are also of great relevance.

This discussion leads me to remark upon Mead's rather implicit treatment of social organization and society. He sometimes referred to these matters in rather structured terms, but most often a processual view dominated his writing. He pictured social structures as somewhat less organized than do most sociologists and anthropologists. The implication is that organizations are something like Melville Dalton's description of industrial establishments; they somehow work, although they have no single goal, no wholly agreed upon consensus; but they service the diverse aims of their personnel and clientele through bargaining, deals, agreements, and negotiation plus the more institutionalized mechanisms.[6] Something like a concept of "negotiated order" seems implied by Mead's views.[7] When one sees this, it is a simple

6 *Men Who Manage* (New York: Wiley, 1959).

7 Cf. A. L. Strauss *et al.*, "The Hospital and Its Negotiated Order," in E. Freidson (ed.), *The Hospital in Modern Society* (New York: Free Press of Glencoe, 1963); see also Herbert Blumer's discussion of articulated lines of action, in his "Society as Symbolic Interaction," in

matter to link it with the preceding discussion of temporality; for the various temporal considerations brought to groups and organizations must receive some articulation—although precise details must be empirically discovered through research. In general, however, there are organizational mechanisms which contribute toward that temporal articulation, but there are also non-institutional mechanisms, including continual negotiation and certain less self-conscious forming of agreements. Temporal order refers to this total, delicate, and continuously changing articulation of temporal considerations.

Such a conception of temporal order fits very well with Mead's continual emphasis upon emergence in social relations. He and Dewey are, in fact, our great American spokesmen among the philosophers of what was once referred to as "emergent evolution." For contemporary sociology and social psychology, this concept might mean that persons are somewhat freer agents than is allowed in the more usual sociological view: freer not only to find ways to circumvent norms and rules, but also freer to help change the social structures within which they find themselves. More than one critic of social or cultural determinism has argued against the model of the individual as mere reflection of the larger social unit, or even as something of an automaton. But that critique need not necessitate an abandonment of the tremendously useful mode of thinking which we call "structural." That analytic mode need only be combined with a systematic search for the particular groups of individuals which are able to institute given changes, or to evade what specific rules, and why; and under what conditions; and with what consequences to the establishment, to themselves, and to others. The supplementary inquiry, of course, is who obeys or attempts to make other people obey those rules and why, how, and with what consequences.[8]

A. Rose (ed.), *Human Behavior and Social Processes* (Boston: Houghton Mifflin, 1962), pp. 179–92.

8 Howard S. Becker has attempted something like this in his discussion of the processes whereby deviants get defined and how those definitions are made to stick as well as how deviants attempt to counter those

One can already see the signs of a deeper reading of Mead in recent sociological and social psychological research publications. Whereas, formerly, sporadic attempts were made to draw specific hypotheses from Mead's writing to see whether they were true or useful, researchers now are beginning to turn to Mead for basic stances on their material.[9] It is likely that with the current decline of strict functionalism in sociology, Mead's processual and perspectival emphasis will be rediscovered by influential theorists. An increased interest in temporal concerns will surely lead to his *Philosophy of the Present.* A Social Science Research Council seminar in 1964 on socio-linguistics will inevitably result in a re-emphasis upon the importance of language in social life, and with that intellectual movement will come a rereading of Mead. And finally, the renewed interest in details of social interaction, once that interaction is seen in the natural world rather than in the experimental laboratory, is likely to take readers back to Mead again. All in all, I am more confident now than I was in 1956, when the first edition of these selected readings was published, that Mead will remain a vital influence on social psychology and sociology.

The selected readings in this volume are substantially the same as, although more abundant than, those in the original edition. Because, however, I wished to call attention to the matters just touched upon, one major change has been made in the book's contents. Part IX is devoted to portions of Mead's writings on

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definitions. See his *Outsiders* (New York: Free Press of Glencoe, 1963). Alfred R. Lindesmith's forthcoming book on the organization of narcotic traffic and attempts at its control also contains an illuminating historical documentation of how narcotic addiction got defined as a public evil, largely through the efforts of one of the federal agencies.

9 For instance, Howard S. Becker *et al.*, *Boys in White* (Chicago: University of Chicago Press, 1961); Fred Davis, *Passage through Crisis* (New York: Bobbs-Merrill Co., 1963); Anselm Strauss *et al.*, *Psychiatric Ideologies and Institutions* (New York: Free Press of Glencoe, 1964); Gregory P. Stone, "Appearance and the Self," in A. Rose, *op. cit.*, pp. 86–118.

time and perspectives, drawn principally from his *Philosophy of the Present.*[10] Also, I have added to Mead's views on Comte and Mills some of his thoughts about the writings of Cooley and Bergson (Part VIII) as well as of James and Dewey (Part III). Of the introduction to the earlier volume, most of the general review of Mead's position has been retained, with a few omissions and additions necessitated by the new material.

The major dimensions of Mead's thinking are perhaps best grasped in relation to several intellectual antecedents, for these flit in and out of his pages in the guise of protagonists or allies. From his predecessors Mead took his basic problems, some of his terms, and parts of his suggested solutions.

By the outset of the nineteenth century, natural science had had a shattering effect upon earlier conceptions of the universe and man. Scientists now worked with notions of a world of matter in motion: this could not but have an effect upon philosophic and political thought. Individualistic doctrines developed which regarded the individual knower as a passive receiver of the physical world impinging upon his sense organs. Individual freedom, individual autonomy, the doctrine of natural rights, contract, the rule of reason, atomistic theories of group life: all these reflected the impact of seventeenth- and eighteenth-century science.

These brands of individualistic and rationalistic philosophy were countered early in the century by idealistic philosophers, notably by the influential German Romantics. Intuition and faith displace reason as the cornerstone of knowledge and action; the passive individual in an impinging physical world is supplanted by a world which has existence only in relation to an active agent; group, folk, spirit, and collectivity take precedence over the autonomous individual; and the later Darwinian revolution is ushered in with mystical and historical conceptions of change, evolution, and development. Other pre-Darwinian philosophers, like the Frenchman Auguste Comte, exalt the role of reason in the form of science but, like the Romantics, conceive of individual action within societal contexts.

10 Lectures upon the Paul Carus Foundation, 3d series, ed. Arthur E. Murphy (La Salle, Ill.: Open Court Publishing).

The Romantic writers had a profound influence upon Mead, as upon Dewey, insofar as they stressed social evolution and made the environment in some subtle sense dependent upon the acting organism. But, since Mead lived after Darwin, the Romantic treatment becomes in Mead's hands divested of its mysticism and is given biological and scientific twists. Most important, the role of reason again is raised in high service to human action, where rationalists and political liberals had placed it, rather than made subordinate to faith and intuition. Likewise the Comtean rejection of metaphysical thought and adulation of scientific method are taken over almost wholly; but the specific interpretation of the method—along with that of Comte's rationalistic contemporary, J. S. Mill—is rejected in favor of an evolutionary and highly social interpretation. Mead also, in ways reminiscent of the French sociologist Durkheim, finds in Comte ammunition against individualistic psychological theories.

But it is to Darwin and his successors that Mead is most indebted: he regarded Darwin as having provided the empirical underpinning for the revolutionary but inadequate Romantic notions of evolution. The corpus of biological writing allows the pragmatist to challenge mechanical conceptions of action and the world and to restate problems of autonomy, freedom, and innovation in evolutionary and social rather than mechanistic and individualistic terms. Mead's pragmatic devotion to reason prevents him from going the way of certain descendants of Darwin—Freud, Macdougall, Veblen, and Le Bon among others—who stressed irrational and non-rational determinants of human behavior. Darwin's work itself, insofar as it deals with man's psychology, is given an elaborate recasting by Mead. Darwin's treatment of expressive gestures is revised in the light of human communication; and biological evolution emerges in the topmost species as something new and different—a true emergent.

Among Mead's important predecessors were those psychologists who pursued genetic interests. The study of child development, itself receiving great impetus from evolutionary writing, became focused upon the rise of speech, thought, and self, in contrast to a later concern with emotional and personality de-

velopment. Mead owes some of the focus of his work to Tarde and to his contemporaries, Baldwin and Cooley. Later he took issue with the Watsonian brand of behaviorism; it excluded covert aspects of human acts as metaphysical or mental, whereas Mead wished to include mental activities within the orbit of the social act itself. To indicate the extent of his agreement and divergence, he titled his own approach "social behaviorism."

The outlines of Mead's philosophical system are sketched in those selections comprising Part I of this volume. In "Evolution Becomes a General Idea" and "The Problem of Society," Mead, the philosopher of evolution, is asserting the primacy of the evolutionary process. This process flows not only through species but through societal organizations, the human included. As species disappear and evolve, so do institutions and societies. In man, evolution can be directed through intelligent action—itself made possible by the purely human capacity for symbolization. Science is the finest instance of intelligence at work and represents the hope of mankind for the solution of problematic social situations. Because of human intelligence, with its associated self-reflexiveness, social institutions can indefinitely take new forms. Like Dewey, Mead is saying that the Darwinian revolution has forever unfettered us from static conceptions of social organization.

This initial line of reasoning introduces us, in large scope, to three of Mead's central preoccupations: (1) science as the instrument, par excellence, for the intelligent control of environment, physical and social; (2) the rise and function of socially reflexive behavior; and (3) the problem of maintaining order in a continuously changing social organization—that is, the problem of intelligent social control. Mead's social psychology is dominated by the second preoccupation; his social philosophy by the third; while his more technical philosophical concerns are focused around the method of science and particularly its implications for control over and contact with the environment.

When Mead writes about scientific method, he does so in accordance with the basic pragmatic position on intelligence. "Intelligence" is really a verb, not a noun: it is an *activity* which

arises whenever an organism encounters ambiguity in its world. But what is ambiguous or problematic is always in relation to what is known or taken for granted. This is true for all organisms, including the scientist himself. In the essay entitled "The Nature of Scientific Knowledge," Mead is particularly interested in relating the scientist's act to the larger communal context.

It is the particular scientist who recognizes and is disturbed enough by ambiguity to wish to fashion an appropriate scientific solution. What appears ambiguous to him does so because he is a member of a particular society at a given time and place. While the problem arises within the individual thinker's experience, he must eventually bring his solution to the community for validation. In doing so, he makes a contribution, however minute, toward changing his community. He contributes toward change, not merely because he has answered a vital question, but because his answer may challenge some portion of that which was taken for granted in order to raise and answer the question in the first place. Mead has here affirmed that the scientist—indeed, any human—affects his social world just because he is a sentient, acting being. Scientific method is merely the most effective way to incorporate continuously arising problematic experiences into an ongoing social order.

Mead is interested in the relationship of the scientist to the physical world as well as to the social. He contends that the scientist is interested not in trying to grasp the structure of the world but in going after the solution of a problem "in a world which is there." Like the German Romantics, Mead makes the environment relational to the person; but he anchors the relationship firmly within community action. Through the thinker's problem-solving act, the world gets revised and "enlarged." Intelligent activity does not seek to know the world but "undertakes to tell us what we may expect to happen when we act in such and such a fashion."

In the selection titled "Mind Approached through Behavior," Mead suggests how the pragmatists, especially James and Dewey, met the challenge of the newer currents of science by discarding a structural psychology and moving toward a behavioristic sci-

ence. The pragmatists, Mead included, emphasize the active role that men play in shaping their environments and destinies—a recurrent theme in Mead's writing.

In "The Process of Mind in Nature," a general philosophical treatment with social-psychological implications is given to relationships existing between the subject and the physical world. Romantic philosophy had failed because it denied the presence of a physical world that lay outside and preceded the organism; however, Mead retains the romantic idea that the organism is an active agent rather than a passive recipient of external stimuli. His central thesis is that action ("the act") determines the relation between the individual and the environment. Stimuli are encountered during the act and affect its course, and their function is misconstrued if we state otherwise their relation to the active organism. Identical stimuli are different for different organisms and for the same organism during different acts. Perception is selective and occurs during action.

In addition, Mead makes action toward the self an integral facet of the act. One takes himself into account while acting toward the non-self. This self-reflexivity is dependent upon language and arises during childhood as a result of participation in groups. Mead is thus making of human perception an exceedingly complicated activity, in which stimuli are responded to selectively during the course of acts and are interpreted symbolically and with reference to self. Since acts may have considerable duration, and perception "functions in the act and all along the act," the perceived environment is different by the end of the act from that at the beginning: some objects of perception have been redefined, others have dropped out as functionally unimportant, and new ones have arisen. These new objects and redefinitions are funneled back to the groups and communities to which the individual belongs, for the individual's act, and its incorporated perceiving, is itself but a segment of the larger communal action.

In the selections taken from *Mind, Self, and Society* we see Mead's elaboration of the basic positions already sketched. Nothing new is added except detail, but to the social psychologist this detail is essential. Here Mead offers us a set of concepts

directly pertaining to crucial matters such as complex mental activities, self, self-control, audience, role-playing, social interaction, motivation, group membership, and group functioning.

We left Mead relating perception to act; he develops this relationship further. Stimuli arise during the act and affect its course. The stimuli may arise in the form of the actions of others, whose action in turn may be a response to ours. In all species, except man, where the process is more complex, the gestures of each animal set off immediate answering gestures (barks, growls, movements) in the other. The entire course of the interaction Mead terms "the conversation of gestures." This conversation can be co-operative, as among a hive of bees, or antagonistic, as in a dogfight. No self-consciousness need be attributed to the responding animals.

Among humans the conversation is much more complex, for we typically indicate to ourselves the meanings of our own gestures. This assigned meaning is in terms of the perspective of some other person—often the person toward whom we are directly acting. But others who are absent may be implicated in our gestures; we may be acting toward them, too, and in answer to their gestures. When our gestural meanings take on identical meanings to ourselves and to others, we have the "significant gesture" or "significant symbol." Mead hypothesizes that only through the verbal gesture (sounds) could man have become self-conscious about his gestures, but this seems not to be a necessary point in his argument. The important point is that typically human meaning arises during co-operative group action. In simpler terms, we may say that every group develops its own system of significant symbols which are held in common by its members and around which group activities are organized. Insofar as the members act toward and with reference to each other, they take each other's perspectives toward their own actions and thus interpret and assess that activity in communal terms. Group membership is thus a symbolic, not a physical, matter, and the symbols which arise during the life of the group are, in turn, internalized by the members and affect their individual acts.

The symbolic conversation of gestures need not take place

between actual persons but may occur "inside" a single person. Here we have thought or mental activity. The person imaginatively acts and, with the positions of significant other individuals in mind, looks back at his proposed action. Mead underlines the fact that this internalized conversation allows men to bring the future into the act, as opposed to language-less animals who must respond rather immediately and directly to present stimuli. Human thought involves the pointing-out of meanings to one's self and thus requires a self-conscious actor—one who can delay overt action while he surveys the meanings and consequences of proposed acts in terms of others' probable responses. In the end, the person can put a number of responses together in unique combination—a very complex act indeed. This is Mead's elaboration of the much simpler notion of the act-with-duration discussed in earlier selections.

The organization of responses requires an actor who also acts toward himself: one must be simultaneously his own subject and object. Mead asks how this is possible, and he again answers by looking at the communicative process. What is necessary to become an object to self is that the individual step outside himself, so to speak, and look back at himself. Mead, following numerous genetic psychologists, notes that the infant cannot do this. He suggests some general steps in learning to take others' roles toward self. The most important is when the child learns not only to assume multiple position vis-à-vis himself but to organize these positions into a system. Childhood games, Mead suggests, are among the situations in which the child acquires the ability to do this. This generalized system of attitudes is termed the "generalized other" (Mead's best-known term).

The generalized other is society's representative in the individual. In the absence of others, the individual can yet organize his behavior with regard to his conception of their related attitudes. Hence the generalized other is closely linked, in Mead's discussion, both with self-control and with social control.

Mead says this in yet another way by setting the "me" against the "I" as two responding sides of the self. The "me" is the controlling, limiting, societal side of the person. The "I" is

the impulsive side of behavior, upon which the "me" makes a judgment after the person acts—immediately after, or long after, or many times after. The "I" is never completely predictable; one may surprise one's self. Hence it is the "I" which introduces novelty and creativeness into the situation. Action which surprises self can be exciting as well as disturbing. Like the scientist's new solution, it can change what formerly was taken for granted. Consistently, Mead asserts that this novel behavior, and its assessment, occurs within large social contexts and reacts back upon those contexts. Everyone makes some contribution toward changing his community.

This socialized individualism is pursued further by Mead. Insofar as each individual participates in different groups, or participates in identical groups in different ways, it follows that no man's "me's" are identical with any other man's. This gives ample leeway for an emphasis upon individuality within worlds of common symbolization. In the sections dealing more specifically with society, the relationships between individual and ideal communality are further discussed.

In Part VIII, some of Mead's views of Comte, Cooley, and Bergson can be read. We find him noting with approval, for instance, Comte's conviction that "we must advance from the study of society to the individual rather than from the individual to society." But Mead also criticizes the earlier positivistic conceptions of scientific method held by Comte and his contemporary Mills, because of their misunderstanding of perception and the possibilities of novelty raised by perception. Mead appreciates the work of his own contemporary, Cooley, on the nature of the self, but believes that Cooley never quite freed himself from a dependence upon biological explanation: his conception of self was not sufficiently social. Bergson's emphasis upon novelty and the exciting possibilities of life are lauded by Mead, but his own emphasis upon science and rationality leads him to point a critical finger at Bergson's reliance upon irrationality.

In "History and the Experimental Method," Mead suggests that the past—historical or otherwise—is significant not in itself but in relation to present and future action. There is no single past to be recaptured in its pure essence, only a past reconstructed

from within a current frame of reference. There are thus as many pasts as there are perspectives. This statement of the noble office of the historian is another version of the hypothesis that remembering is an active process, reconstructive and highly selective. Other psychologists have investigated memory from this same viewpoint. What Mead adds is that remembering is always part of larger acts; from this follows his discussion of social movements and their reconstruction—even construction of their own pasts.

Finally, in the excerpts on "time" from *Philosophy of the Present,* we see Mead thinking with great originality and expressing himself with unusual felicity and brilliance. With characteristic emphasis upon emergence, he argues that reality is always in the present, that the past refers to "that conditioning phase of the passing present which enables us to determine conduct with reference to the future which is also arising in the present," and that "the novelty of every future demands a novel past." Mead links particular presents with particular social acts in which one is engaged; so that what he terms "functional presents," rather than "specious presents," are the important phenomena, linked as they are with the social enterprises in which individuals are engaged. Mead's most brilliant elaboration of temporality as genuine possibility is found, perhaps, in the selection titled "The Objective Reality of Perspectives." Here he reviews and criticizes Whitehead's notion of an organization of perspectives, carrying the notion one step further by relating that organization to social organization itself, via conceptions already encountered by the reader in excerpts from *Mind, Self, and Society.*

Mead's elaboration of his ideas about temporality was abruptly ended by his unexpected death. Since those ideas are among his best, they ought to be more widely known. They might help us all fly a little further and higher.[11]

11 In this edition of Mead's writings, occasional minor changes have been made for clarity. Much of the original publication drew upon students' notes or unpublished papers, whose punctuation and grammar left something to be desired. The changes in this edition consist mainly of repunctuation or additional punctuation, of occasional correction of grammar, and of infrequent rephrasing or pinpointing of referent. Readers who wish to quote Mead in the original must, therefore, check with the original.

Part I

I

EVOLUTION BECOMES A GENERAL IDEA

PASSING as we have from Kant to the Romantic idealists, we proceed from a conception of static forms which are originally given, and which serve as the whole basis of Kant's transcendental philosophy, to an idea of the development of the forms through a process, an evolutionary process. Kant conceived of the basic forms of the world as being given in the character of the mind itself. The forms of space and time—given in the sensibility; the forms of the understanding—given in the categories; and the forms of the reason, are all there in advance of experience. If the object, as such, arises under Kant's doctrine, it is because of certain contents of the sensibility passing into these forms. That is what makes it an object. It is not an object for our cognitive experience unless it has these forms that give it its reality. Sensuous experience itself, unless it takes on some form, has no meaning, no reality; it cannot be known except insofar as the experiences have some form. And in the Kantian doctrine, the form is given in advance. This is what Kant expressed in terms of the "transcendental logic," the term "transcendental" meaning

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the logical pre-existence of the form to the object. This concept, you see, belongs to pre-evolutionary days. The logical pre-existence of the form to the object cannot be stated in terms of process; therefore it falls outside of evolutionary ideas. In order that there might be an object there, Kant, as over against the empiricists, said that the form must be there originally, in advance. The latter undertook to show how an object might arise out of the mere association of different states of consciousness. Kant insisted that, in order for there to be an object, the form must be there first.

But the Romantic idealists changed all that. For them, the forms arose in the very process of experience, in the process of overcoming antinomies, overcoming obstacles. We are responsible for the forms. In other words, we have, in experience, not a pouring of the characters of our sensibility—colors, sounds, tastes, odors—into certain fixed forms, but a process of experience in which these very forms arise. Logic, as the romanticists conceived of it, was a dynamic, not a static, affair—not a simple mapping-out of judgments which we can make because of the forms which the mind possesses, but a process in which these very forms themselves arise.

The process of experience, according to these idealists, creates its own forms. Now this has a very abstruse sound, of course; but what I want to call your attention to is that it is nothing but an abstract statement of the principle of evolution. These Romantic idealists were undertaking in the field of philosophical speculation what Darwin and Lamarck were undertaking in the field of organic phenomena at the same period. What the Romantic idealists, and Hegel in particular, were saying, was that the world evolves, that reality itself is in a process of evolution.

This was a different point of view from that which characterized the Renaissance science of which I have previously spoken. This Renaissance science started off with just as simple elements as it could. It started with mass and motion. And Newton defined "mass" first as a quantity of matter; but, as that involved a conception of density and there was no way of telling just how dense your matter was, he had to get another definition. And he found

it in terms of inertia, that is, the response which a body offers to a change of state in either its rest or its motion. If you want to measure the mass of a body, you measure its inertia. You see how much force is necessary to set it going, and so forth. And in that way you measure its mass, so that mass is really measured in terms of accelerations, that is, accelerations that you add to motions of a body. We come back to these simple conceptions of mass and motion; but we really define our mass in terms of certain sorts of motion, that is, velocities and accelerations. With these very simple conceptions the physicist undertook to build up a theory of the world. Newton gave the simple laws of mass and motion, and then, on the basis of mathematics, worked out an entire mechanics, which up to within a very short time has been the classical theory of the physical world. On the basis of this physical theory, there is just so much motion; there is just so much mass; there is just so much energy in the universe. When the system was more fully worked out, as it was in the nineteenth century, the principles of the conservation of energy were added to those of Newton, although they were implied in his system anyway.

Now, such a world as this is made up simply of physical particles in ceaseless motion. That is all there is to it. We speak of the different objects about us—trees, houses, rivers, mountains—all varied, all part of the infinite variety of nature—but what this science does is to break them up into ultimate physical particles, molecules, atoms, electrons, and protons. The object is nothing but a congeries of these; and, as already stated, the relationship between the particles in one object and in another object are just as real and just as important as the relations found between the particles within any single object itself. For you, the tree is something that exists by itself. When it has been cut down, it is so much lumber. The stump continues to exist as a thing by itself. And yet, from the point of view of mechanical science, the relationship between atoms and electrons in the stump of the tree with those in the star Sirius is just as real as the relations existing between the electrons in the trunk of the tree. The trunk is not an object there because of the physical definition that you give to it.

Every field of force that surrounds every electron is related to every other field of force in the whole universe. We cut our objects out of this world. The mechanical world reduces to a mass of physical particles in ceaseless motion. So far as such a world can be said to have any process of its own, it is that which is represented in the term "entropy."

With the appearance of steam engines, people tried to work out the theory of them. And a Frenchman, Sadi Carnot, had the happy idea of thinking of the heat which was responsible for the formation of steam as flowing downhill through different degrees of temperature. When the steam was hot, its expansive power was great; and then, as it lost heat, it lost its power to expand. As it flowed down the hill of temperature, it lost its power. Of course, energy is not lost in the universe. It is just dispatched into surrounding objects. Thus, Carnot was able to work out a theory of steam engines which hinged upon this knowledge of energy flowing down a temperature hill. You put your piston rod into this stream, and it will work the engine; but when it is at the bottom of the hill, it can do no more work. The mill cannot be turned by water that has passed. Well, now, this presented a picture of the whole universe as just a congeries of atoms in the sort of motion that was called heat. When you set any sort of motion going, you know that you use up energy by friction in some way or other and that you produce heat. The whole universe seems to be running down toward a condition in which this motion will be evenly distributed through the entire universe. All manifestations of energy are due to the fact that they are on high levels, so to speak; but, given time enough, in the course of millions of years, everything will get evened out and all the particles will be in a fairly quiescent condition, with a slight, even motion of a Brownian sort distributed throughout the whole universe. That is the conception of entropy. That is the goal of the universe, if it has one, in which there will be some kind of energy evenly distributed throughout. We can be very thankful that we do not exist at that time. Of course, we could not exist then in any meaningful sense. That mechanical conception which science presents has no future —or a very dark one, at best. Not dark in the sense of catastro-

phies, for those are always exciting; but dark in the very monotony of the picture. The conception of entropy is anything but exciting. Such a universe would answer only to an infinite sense of ennui.

The scientific conception, the mechanical conception, of the world did not seem to be one that gave any explanation to the form of things. As I have said, science does not justify us in taking a tree, a plant, an animal, or a house as separate objects by themselves. As we know, from the scientific standpoint there is no difference between life and death—simply a shifting of energies. From the scientific standpoint, the forms of things have no real significance. Of course, if you start off with a certain thing, given a certain form, you can use scientific technique to analyze it; but your abstract mechanical science, that to which Newton gave form, does not account for any object, does not account for the acceptance of one object rather than another.

It was Kant who took the first step toward a theory of the heavenly bodies. He was very devoted to the mechanical science of his period; but his imagination carried him a step farther, and he tried to conceive how the present form of the heavens might have arisen out of earlier forms. His statement was one that really got its scientific formulation in Laplace's conception of the solar system as a great nebula, intensely hot to begin with and which gradually cooled down. Kant had to assume a whirling nebula which cooled down and resulted in a series of rings moving about the center as it condensed, gradually developing into a system of bodies of unspecific form. The velocity of the bodies on the outside of the system would keep them from moving in toward the center, and out of these rings the planets would arise. That is the suggestion which Laplace took from Kant and made into an explanation of the way in which the solar system arose. This was the first step toward a theory of the evolution of the heavens.

But what I now want to present is something different from this picture which mechanical science gives of the universe. It is an attempt to state an object in a certain form and to show how that form might arise. When you think of it, that is the title of Darwin's book, *The Origin of Species,* "species" being nothing

but the Latin word for form. What is the origin of these forms of things? Mechanical science does not offer any explanation of them. Anyway, from the point of view of mechanical science, the form has no meaning. All that this science says about a particular form is that in referring to a certain object you are isolating a certain group of physical particles, taking them off by themselves. Really, they are related to all physical particles. But the universe that we know is more than particles. It is a world of forms. Now, the question is: Where do these forms come from? Certain of the principal forms, Kant said, come from the very structure of our own minds. The theology of the period said the forms of animals and plants go back to a creative fiat of God. He gave the earth its form and all the stellar bodies their forms and their motions, as well as those of the plants and animals. And that, of course, was the point from which the descriptive sciences of the time—biology, botany, and zoölogy—started. They assumed species of plants and animals which had been created by God when he made the earth.

What Darwin undertook to show was that some of these forms must conceivably have arisen through natural processes. But how could the forms as such have arisen? Mechanical science could not explain them, because, from the point of view of mechanical science, form does not exist. There are only two objects—one the world as a whole and the other the ultimate physical particles out of which it is made. All the other so-called objects are objects that our perception cuts out. That is, we distinguish the chair from the table and ignore the relations between them because we want to move them about, we want to sit on the one and write on the other. For our purposes, then, we distinguish them as separate objects. Actually, they attract each other as physical particles, parts of a single, all-inclusive electromagnetic field. The forms are not explained by the mechanical science of the period. The biological and other sciences—such as cosmology, astronomy—all explained certain forms which they found, insofar as they did account for them, by saying that they were there to begin with. And even Kant assumes that the forms of the mind are there to begin with.

Now the movement to which I am referring, under the term "theory of evolution," is one which undertakes to explain how the forms of things may arise. Mechanical science cannot explain that. It can break up forms, analyze them into physical particles; but it cannot do more than that. Biological science and astronomical science both start with certain forms as given. For example, Laplace's conception is of rapidly revolving, hot nebular bodies which were present to start with. Biological science started with certain living forms; geology, with definite types and forms of rocks. These sciences classify things in accordance with the forms that are found. But they do not generally undertake to show how the forms arise. There is, of course, the science of the growing form, embryology. But this is a recent science. It accounts for the way in which the adult arises out of the embryo. The older theory of biology assumed the form already there; it even conceived of a complete man as given in the very cells from which the form of the embryo developed. The assumption was that the form was there as a precondition of what one finds. This is Aristotelian science. It is also essentially Kantian. We have seen how we conceived of the forms of the mind as given as the precondition of our experience.

Now, Lamarckian and Darwinian evolution undertook to show how, by a certain process, forms themselves might come into being, might arise. Starting with the relatively formless, how could one account for the appearance of forms? Lamarck started with the hypothesis that every activity of the form altered the form itself, and the form then handed on the change to the next generation. As a picturesque example, assume that the progenitors of the giraffe wanted, or had, to feed off the leaves of trees, and so stretched their necks. They handed this stretched neck on to their longer-necked offspring. The inheritance of so-called "acquired characteristics" was Lamarck's suggestion to account for the appearance of forms. He assumed, as did Darwin, that you start with relatively formless protoplasm, and went on to show the process by means of which forms might arise from that which was relatively formless.

We were discussing Romantic idealism, and we pointed out

that it was a development or an expression of the spirit of evolution, of the definite entrance of the idea of evolution into Western thought. Indeed, we spoke of Hegel's philosophy as a "philosophy of evolution." This highly abstruse, speculative movement is simply a part of this general movement toward the discovery of the way in which the forms of things arise, of origins. As a scientific undertaking, it was not aided by the physical science of the time. It had to make its own way, and this it did to an amazing extent. In later generations it became a guiding idea in practically all investigations.

I mentioned earlier the distinction between the conception of evolution that belonged to the older, ancient thought which got its classical expression in the Aristotelian doctrine and the evolutionary theory of this period. The Aristotelian evolution was the development of the so-called form, the nature of the thing which was already present. It presupposed the existence of the form as something that was there. In this conception, a metaphysical entity was thought of which existed in and directed the development of the form. The species—which is the Latin word for the Greek term "form"—was actually conceived of as a certain nature that supervised the development of the seed of the embryo into the normal adult form. Under the conception of Christian theology this form was thought of as existing first in the mind of God, then as appearing in the plants and animals and various other objects that he created, and finally as arising in our minds as concepts. The form, however, was not thought of exactly in the Aristotelian sense as existing in advance, as being an entelechy, the nature of the object existing in advance of the actual animal or plant.

The difference between that conception of evolution and the modern conception is given, as I have already pointed out, in the very title of Darwin's book, *The Origin of Species*, that is, the origin of forms. It is an evolution of the form, of the nature, and not an evolution of the particular animal or plant. What this theory is interested in is the evolution of the nature of the object, of the form, in a metaphysical sense. It is this which distinguishes the later theory of evolution from the former, namely, that the

actual character of the object, the form or the nature itself, should arise instead of being given.

As you may remember, Darwin got the suggestion for his hypothesis from Malthus' doctrine of population. This was an attempt to show the relationship which exists between population and the food supply, and what effect this relationship may have on the future of the race. Of course, Malthus' statement was greatly disturbed by the introduction of machine production; this upset many of his calculations, if not the theory as a whole. Yet, it is interesting as an attempt to state in definite ways what the experience of the race will be in the light of a single factor in its environment, that is, the food supply.

Darwin became very much interested in this problem, and it led him to undertake to explain certain variations which take place in forms as being due to the pressure of population. In nature there are always more forms born into the world, more plants and animals, than can possibly survive. There is a constant pressure which would lead to the selection of those variants which are better adapted to the conditions under which they must live. This process of the culling-out of these better adapted forms would, in time, lead to the appearance of new forms. What lies back of this conception is the idea of a process, a life-process, that may take now one, and now another, form. The thing of importance is that there is a distinction made between this life-process and the form that it takes. This was not true of the earlier conception. In it, the life-process was thought of as expressed in the form; the form had to be there in order that there might be life.

The idea of which I have just spoken I have referred to as Darwinian. The same idea lies back of the conception of Lamarck. He assumes a life-process which may appear in one form or another, but which is the same process whatever form it takes on. The particular form which it does assume depends upon the conditions within which this life-process is run. Thus we find the same fundamental life-process in plants and in animals—in the amoeba, in man, and in every form between. It is a process that starts in the separation of carbon and oxygen. These two, in the

form of carbon dioxide, exhaled by animals as a by-product of the assimilation of food, are found in water solution in plants as carbonic acid. Through the mediation of the action of chlorophyl and light this eventually becomes food, in the form of various sugars and starches. These starches are then carried to tissues that expend energy, that burn up and set free energy in the life of plant or animal, get rid of waste produucts, set up the means of reproduction, and so pass on from one plant or animal to another, from one generation to another. The essentials of that life-process are the same in all living forms. We find it in unicellular forms, in multicellular forms. The only difference is that in the case of the latter we find a differentiation of tissues to carry out various functions; we find different groups of cells that take up one of the phases of the life-process and specialize in that—the lungs take in air, oxygen; another group of cells becomes the means of the circulation of the blood; others take over the functions of ingestion, of locomotion, of secreting fluids that make digestion and reproduction possible. In other words, separate groups of cells carry on different parts of the life-process. The whole process, however, is the same as that which goes on in unicellular forms. That, you see, is involved in this conception of evolution—a life-process that flows through different forms, taking on now this form, now that. The cell, as a single entity in the whole, remains fundamentally what it was in the unicellular form. All living cells bathe in some fluid medium; those cells on the outside of us are dead. Living cells are those which are bathed in the fluids of the body, such as the blood or lymph. They are the only ones which are alive, and they carry over into the body some of the original sea from which our original unicellular existence migrated. These cells went from the surface to the bottom, and there multicellular forms arose. From the bottom of the sea to man, they had to bring this precious fluid in which alone cells can live. This was first found in plants. And animals then came and lived upon the plants; but the life-process has flowed through all and remains the same life-process.

Given such a conception as this, it is possible to conceive of the form of the plant or the animal as arising in the existence of

the life-process itself. It is very important that we should get the conception of evolution that is involved in it and distinguish it from the earlier conception, especially if we are to understand the appearance of this conception in its philosophic form. We are concerned with a theory which involves a process as its fundamental fact, and then with this process as appearing in different forms.

Now, the Romantic idealists, who first developed a philosophy of evolution, came back, of course, to our experience of ourselves—that reflexive experience in which the individual realizes himself insofar as, in some sense, he sees himself and hears himself. He looks in the glass and sees himself; he speaks and hears himself. It is the sort of situation in which the individual is both subject and object. But in order to be both subject and object, he has to pass from one phase to another. The self involves a process that is going on, that takes on now one form and now another—a subject-object relationship which is dynamic, not static, a subject-object relationship which has a process behind it, one which can appear now in this phase, now in that.

To get the feeling for this Romantic idealism, one must be able to put himself in the position of the process as determining the form. And it is for this reason that I have said what I have in regard to evolution. That does not get us as deep into our experience as the subject-object relationship does. Logically, it is of the same character, namely, a process in this case, a life-process, going on that takes now one form and now another. The process can be distinguished from the form; yet it takes place within the different forms. The same apparatus for digestion has to be there; the same apparatus for expiration, for circulation, and for the expenditure of energy have to be there for the life-process to go on; and yet this life-process may appear now with this particular apparatus and now with that. In your thought you can distinguish the process from the form. And yet you can see that there must be forms if the process is to take place. We have spoken of the unicellular animal as having no form in that sense. That statement is not entirely correct. We know that there is a high degree of organization of molecular structure in the cell itself. We can fol-

low it out in a vague sort of way. You cannot have a process without some sort of a structure; and yet the structure is simply something that expresses this process as it takes place now in one animal and now in another, or in plants as against animals. That life-process that starts off with carbon dioxide, with water and carbonic gas, goes on through plant and animal life and ends up as carbon dioxide, in the carbonic acid gas and water that we breathe out. That process is something we can isolate from the different organs in which it takes place, and yet it could not take place without some sort of organ. We can separate the process from particular organs by recognizing them in one or another animal, in one or another plant. But we could not have the process if there were not some structure given, some particular form in which it expresses itself.

If, then, one is to make a philosophy out of this evolutionary movement, one must recognize some sort of process within which the particular form arises. In the biological world this process is a life-process, and it can be definitely isolated as the same process in all living forms, because in the scientific development of physics and chemistry, as well as of physiology, we are able to find out what this life-process is, to think of the life-process apart from the particular form in which it goes on—to separate, in other words, such a function as the digestive process from the digestive tract itself; to be able to realize that the ferments essential to digestion, the breakdown of starches and proteins and the organization, the synthesis, of these into organic products which the animal can assimilate, goes on in the amoeba, which has no digestive tract at all. The importance of the digestive tract is dependent upon the life of the particular group of cells that go to make up an animal. The problem presented to the animal form is the conversion of edible protoplasm, which is found in plants, into an assimilable form. The plant had to protect its fluid with cellulose. In order to get at the fluid, the animal has to be able to digest away the cellulose. Such an animal as the ox has to have a very complicated apparatus within itself; it sets up a whole series of bacteriological laboratories and brings into them micro-organisms that ferment the cellulose that surrounds the edible

protoplasm. The digestive tract of the animal is, then, an adaptation to the sort of food which these living cells feed upon. The animal has to have a structure which will enable it to get at the edible protoplasm itself. On the other hand, the tiger, which lives on the ox, has a rather simple assimilative problem on his hands. The ox has done the work, and the tiger can feed on his flesh. Of course, we are in the position of the tiger, except that we take the ox from the stockyards! The point is that our digestive system, like that of the tiger, can be much more simple than the ox's. Our whole life-process is not devoted to digesting away cellulose that surrounds food.

This indicates the way in which the form arises, so to speak, within the life-process itself. The form is dependent upon the conditions under which the life-process goes on. It is the same process, but it meets all sorts of difficulties. It has to have a particular apparatus in order that it may meet each of these difficulties. Such a life-process as this, which is the same in all these forms, was entirely unknown to the ancient physiologist. He could look at the animal only from the outside. He could see what were the function of the mouth and the feet, of the various limbs and external organs; but he could not get inside the animal and discover this process that was flowing on, that was taking on these different outer forms as the plant or animal needed a certain apparatus to enable it to live under certain conditions. It is essential to science and to the philosophy of evolution that it should recognize as basic to all a certain process that takes place, and then that it should undertake to show the way in which the forms of things arise in the operation of this process.

The question as to whether a Darwinian or Lamarckian hypothesis is to be accepted is not really of such great importance. The important thing about the doctrine of evolution is the recognition that the process takes now one form and now another, according to the conditions under which it is going on. That is the essential thing. One must be able to distinguish the process from the structure of the particular form, to regard the latter as being simply the organ within which a certain function takes place. If the conditions call for a certain type of organ, that organ

must arise if the form is to survive. If conditions call for an organ of another sort, that other sort of organ must arise. That is what is involved in the evolutionary doctrine. The acceptance of the Darwinian hypothesis is simply the acceptance of Darwin's view that selection under the struggle for existence would pick out the organ which is necessary for survival. The heart of the problem of evolution is the recognition that the process will determine the form according to the conditions. If you look at the life-process as something which is essential in all forms, you can see that the outer structure which it takes on will depend upon the conditions under which this life-process runs on.

Now, if you generalize this, make a philosophic doctrine out of it, you come back to some central process which takes place under different conditions; and the Romantic idealists undertook to identify this process, first of all, with the self—not-self process in experience, and then to identify this self—not-self process with the subject-object process. They undertook to make these one and the same. The subject-object relationship is, from the philosophical standpoint, and especially from the epistemological standpoint, the more fundamental one. But the self looms up very importantly here, as you can see, for it is a self that is a subject. As I pointed out above, the object was in some sense explained by the empiricist. If you are to put the object into the subject-object process, you have to find a subject that is involved in the presence of the object. The old doctrine assumed that the world was there and that human beings later came into it. In other words, according to this view, the object was there before the subject. The appearance of the subject seems to have been purely accidental, incidental. The object might just as well be there without the subject being there. But, what the Romantic idealists insisted upon is that you cannot have an object without a subject. You can see very well that you cannot have a subject without an object, that you cannot have a consciousness of things unless there are things there of which to be conscious. You cannot have bare consciousness which is not consciousness of something. Our experience of the self is one which is an experience of a world, of an object. The subject does involve the object in order that we

may have consciousness. But we do not as inevitably recognize that the subject is essential to there being an object present. According to our scientific conception, the world has arisen through millions of years, only in the last moments of which have there been any living forms; and only in the last second of these moments have there been any human forms. The world was there long before the subjects appeared. What the Romantic idealist does is to assume that for these objects to be present there must be a subject. In one sense this might be said to be reflecting the philosophical dogma that the world could not be present unless created by a conscious being. But this problem is something more profound than a philosophical dogma. It is the assumption that the very existence of an object, as such, involves the existence of a subject to which it is an object.

Well, if we are to find an instance of that in which the object involves a subject, as well as the subject involving an object, we can come back to the self. The self can exist as a self only insofar as it is a subject. And significant objects can exist only as objects for a subject. We can see that the self-process of the Romantic idealists—this fusion of the two phases of experience, the self-experience on the one hand and the subject-object experience on the other hand—was one which enabled them to insist, not only that the subject involved an object, but also that the object involved a subject. This, then, was the central process for them: the self, the not-self, are expressions of a single process, and in this also is found the subject-object relationship in which both terms are always mutually involved. Just as there can be no self without a not-self, so there can be no subject without an object and vice versa.

One more word about evolution. We have a statement of the human animal as having reached a situation in which he gets control over his environment. Now, it is not the human animal as an individual that reaches any such climax as that; it is society. This point is cogently insisted upon by Hegel, the last of the Romantic idealists. The human animal as an individual could never have attained control over the environment. It is a control which has arisen through social organization. The very speech

he uses, the very mechanism of thought which is given, are social products. His own self is attained only through his taking the attitude of the social group to which he belongs. He must become socialized to become himself. So when you speak of this evolution, of its having reached a certain climax in human form, you must realize that it reaches that point only insofar as the human form is recognized as an organic part of the social whole. Now, there is nothing so social as science, nothing so universal. Nothing so rigorously oversteps the points that separate man from man and groups from groups as does science. There cannot be any narrow provincialism or patriotism in science. Scientific method makes that impossible. Science is inevitably a universal discipline which takes in all who think. It speaks with the voice of all rational beings. It must be true everywhere; otherwise it is not scientific. But science is evolutionary. Here, too, there is a continuous process which is taking on successively different forms. It is this evolutionary aspect of science which is important in the philosophy of the contemporary French philosopher, Henri Bergson, whose work we will consider later.

2

THE PROBLEM OF SOCIETY—

HOW WE BECOME SELVES

WHAT I have wanted to make evident is that science itself has been advancing at a great rate and has become conscious of its experimental method, which seemingly has been the source of its advance. It has been natural that philosophy should take these phases of the scientific advance as a basis for its interpretation of life, for science, as we know, is not a thing which exists by itself, even though it uses abstruse mathematical methods. It is an instrument by means of which mankind, the community, gets control over its environment. It is, in one sense, the successor to the early magic that undertook to control its environment by magical methods. It is a means of control. Science is something that enters into all the minutiae of life. We cannot brush our teeth without it. We cannot eat or drink without science coming in to tell us what should be eaten, what vitamins in the upper part of the alphabet ought to be used, how they can be obtained in the orange juice and the spinach that are on the menu. It tells us how to blow our noses and indicates with whom we may shake hands and whom we should avoid. There is hardly a point in life at which science does not tell something about the conduct that is an essential part

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of our living. It is, in a way, independent of the community, of the community life. It goes on in separate institutions, in universities that cloister themselves from the community, under separate foundations that demand that this work shall be entirely free so that the scientist may entertain whatever view he cares to hold, use whatever methods he has worked out. The scientist demands a freedom in his operations which is greater than that which anyone else in the community can demand. He seems to stand outside the community; and yet, as I have said, his statements, the directions which he gives, enter into the whole minutiae of social life. Society is feeling its dependence upon scientific method more and more, and will continue to do so if it is to go ahead intelligently. The control over community life in the past has been a control of situations. The control, as such, has been almost inevitably conservative. It has preserved orders which have established themselves as social habits that we call "institutions." A conscious social control has taken on this form: The law must be obeyed; the constitution must be honored; the various institutions such as the family, school, courts, must be recognized and obeyed; the order which has come down to us is an order which is to be preserved. And, whenever the community is disturbed, we always find this return to the fixed order which is there and which we do not want to have shaken. It is entirely natural and, in a certain sense, entirely justifiable. We have to have an order of society; and, when what is taking place shakes that order, we have no evidence that we will get another order to take the place of the present one. We cannot afford to let that order go to pieces. We must have it as a basis for our conduct.

The first step consciously taken in advance of this position is that which grew out of the French Revolution, that which in a certain sense incorporated the principle of revolution into institutions. That is, when you set up a constitution and one of the articles in it is that the constitution may be changed, then you have, in a certain sense, incorporated the very process of revolution into the order of society. Only now it is to be an ordered, a constitutional revolution by such and such steps. But, in any case, now you can change the order of things as it is going on.

That is the problem of society, is it not? How can you present order and structure in society and yet bring about the changes that need to take place, are taking place? How can you bring those changes about in orderly fashion and yet preserve order? To bring about change is seemingly to destroy the given order, and yet society does and must change. That is the problem, to incorporate the methods of change into the order of society itself. I do not mean to say that society has not always recognized that change could take place, but it did not undertake to find a process by means of which this should go on. It simply assumed that change was going to take place toward some fixed goal. If you are going to have a society in which everyone is going to recognize the interests of everybody else—in which the golden rule is to be the rule of conduct, that is, a society in which everyone is to make the interests of others his own interest, while actually each person seems to be pursuing his own interest—how can that goal be reached? It was assumed, of course, that this was to be done through a religious current, through a change in the heart of the individual. But in the last analysis that goal was to be reached in the world to come, not in this one. That was the religious solution. The order we find is one given by God for this world and must be preserved. The final perfect society was to be a New Jerusalem that belonged to another world. The religious goal was one of otherworldliness. We have other conceptions, councils of perfection set up, such as that of a society in which you should bring liberty in the sense of everyone's respecting the rights of everyone else, one's liberty being in that sense only circumscribed by intrenching on others' liberty. That is more or less an abstraction. To take a practical illustration, how are you to determine where the liberty of a man in the control of his property is to be restricted? He needs controlling. We will say that he, or rather a group of men, own shares in a railroad, and that they choose to deal with rates in a fashion which will serve their own interest. Well now, if they are to have complete control over their property, and then the community comes in and says that theirs is property of a different sort, that their acts must have the approval

of the community, how are we to determine where the restriction in the control of the property is to take place?

How is society to find a method for changing its own institutions and still preserve the security of those institutions? That is the problem that presents itself in its most universal form. You want a society that is going ahead, not a fixed order, as the religious solution would have it. You want a society that is progressing. Progress has become essential to intelligent life. Now, how are we to get ahead and change those situations that need changing and yet preserve the security of them? You see this is an advance in which we cannot state the goal toward which we are going. We do not know what the goal is. We are on the way, but we do not know where. And yet we have to get some method of charting our progress. We do not know where the progress is supposed to terminate, where it is going. This is a seemingly insoluble problem.

Science does, in a sense, present the method for its solution. That is, it recognizes that progress is of the nature of the solution of a problem. What these problems present are inhibitions, the checking of conduct. And the solution of the problem stops this checking process, sets it free so that we can go on. The scientist is not looking ahead toward a goal and charting his movement toward that goal. That is not the function of the scientist. He is finding out why his system does not work, what difficulty in it is. And the test of his solution of the difficulty is that his system starts working again, goes on. Science is occupied with finding what the problems are that exist in the social process. It finds what the problems are, what processes have been definitely checked. Then it asks: How can things be so reconstructed that those processes which have been checked can be set going again? The illustration which I have given from the field of hygiene is as good as any, but you can find similar illustrations elsewhere.

Take, as another example, the social problem of recreation, with all the dangers that gather about its various forms, particularly about commercialized recreation. Shall we recognize the legitimacy of the expression of the play instinct, the freedom for the play one wants, when at the same time we recognize that dan-

gers go along with it? You do not set up an ideal form of recreation. You find out what the dangers are, just what it is that finds expression in play, what the freedom is that is demanded there; and you see how you can combine the control or avoidance of danger with the freedom of expression. That is the sort of problem we are meeting. We have to let freedom of activity go on, and yet dangers must be avoided. And what science does is to give a method for studying such situations. Again, on the social side, or on the biological side in dealing with questions of disease, we have the question of how we shall deal with these problems. As a further instance, take the question of crime. What are the conditions out of which crime itself springs? How, on the one hand, can you protect society against the criminal and yet, on the other hand, recognize those conditions which are responsible for the criminal himself? What procedure can you set up by means of which you can guard society against the criminal and at the same time protect the individual against unfair conditions under which he has been living? Here we have a series of clashing problems, and what we have to do is to get a way which will recognize that what we feel is essential in each, so that the problems can be adjusted and the essential processes of life can go on. When we get such a method, we have the means for the solution of our problems. Let me illustrate this further in the problem of juvenile crime, so-called. There we have a situation in which certain definite habits embodied in our institution of the court prove unsatisfactory. The child is brought before the court by the police. The social habit left simply to itself would condemn the child to the penitentiary and thus make a confirmed criminal out of him. But it is possible to modify those habits by what we call the "scientific method."

What I wish to point out is that the scientific method is, after all, only the evolutionary process grown self-conscious. We look back over the history of plant and animal life on the face of the globe and see how forms have developed slowly by the trial-and-error method. There are slight variations that take place in the individual forms and occasional, more pronounced variations that we call "mutations." Out of these, different forms gradually arise.

But the solution of the particular problem of an animal—the food problem, we will say—is one which may take thousands of years to solve in the gradual development of a certain form. A form which passes, for example, from the eating of meat to the eating of vegetables develops a type of stomach capable of handling this latter kind of food. Here we have a problem which is met gradually by the appearance of some form that does commence to develop an adjustment to the problem, and we can assume that from its progeny those particular forms will be selected which are adapted to such digestion. It is a problem which has to be met if there is to be development, and the development takes place by the seemingly incidental appearance of those forms which happen to be better able than others to meet the peculiar demands set up. If we put ourselves in the same place, there is the same problem. The food problem faces us as it does all other animal forms. We have to get our food from both the vegetable and the animal kingdoms. But if it is a question of our being able to get the food that is shut up inside a cellulose covering, we do not wait through long periods until we develop stomachs which will be able to digest this substance. We work out a milling process by means of which we set free that which is digestible. That is, we solve the problem directly by what we call the "scientific method." Food which we need is shut off from us by a cellulose covering. We work out a mechanism to get rid of this covering. There is an evolutionary problem made self-conscious. The problem is stated in a definite form; this, in turn, excites the imagination to the formation of a possible hypothesis which will serve as the solution of it; and then we set out to test the solution.

The same process is found in social development, in the formation of great societies among both invertebrates and vertebrates, through a principle of organization. Societies develop, just as animal forms develop, by adjusting themselves to the problems that they find before them. They have food problems, problems of climate, just as individual animals do; but they meet them in a social fashion. When we reach the human form with its capacity for indicating what is important in a situation, through the process of analysis; when we get to the position in which a mind can

arise in the individual form, that is, where the individual can come back upon himself and stimulate himself just as he stimulates others; where the individual can call out in himself the attitude of the whole group; where he can acquire the knowledge that belongs to the whole community; where he can respond as the whole community responds under certain conditions when they direct this organized intelligence toward particular ends; we have this process which provides solutions for problems working in a self-conscious way. In it we have the evolution of the human mind which makes use directly of the sort of intelligence which has been developed in the whole process of evolution. It makes use of it by the direct method that we call "mental." If one goes back to a primitive society, one finds the beginnings of the evolution of what we call "institutions." Now these institutions are, after all, the habits of individuals in their interrelation with each other, the type of habit that is handed down from one generation to another. And we can study the growth of these habits as we can study the growth and behavior of an animal.

That is where science comes in to aid society in getting a method of progress. It understands the background of these problems, the processes out of which they have developed; and it has a method of attacking them. It states the problem in terms of checked processes; and then it has a test of the suggested solution by seeing whether those processes can continue or not. That is just as valuable—in a certain sense more valuable—a contribution of science as any of its immediate results that we can gather together. This sort of method enables us to keep the order of society and yet to change that order within the process itself. It is a recognition that intelligence expresses itself in the solution of problems. That is the way in which evolution is taking place in the appearance of problems in life. Living forms have found themselves up against problematic situations: their food gone, the climate changed, new enemies coming in. The method which nature has followed, if we may speak so anthropomorphically, has been the production of variations until finally some one variation has arisen which has survived. Well, what science is doing is making this method of trial and error a conscious method.

Up to this period the so-called social sciences have been gathered about the more or less dogmatic theory of certain institutions. It was assumed that each institution stood upon certain rational doctrines, whether those of the family, the state, the church, the school, or the court. The early theory was that these institutions were established directly by God. The divine right of kings was simply the assertion that the state had as divine an origin as the church; and it was assumed that God was also responsible for the ordering of the family and the other institutions. They all came back to a direct structure which was given to them. If the theories did not place this structure in divine ordinance, they brought it back to certain natures in the institutions themselves. And it was assumed that you could work out the theory which would determine what the institutions ought to be. The development of evolutionary doctrine had as great an effect in this field as any it had in biology. Spencer, and others following immediately in his path, carried over the evolutionary theory into the development of human institutions. People went back to primitive societies, which at first were regarded as much more primitive than they were, and then undertook to show how, out of the life of these people, different institutions arose through a process of evolution.

I pointed out earlier that a certain part of the stimulus which directed this thought came from the Hegelian movement. The Hegelian doctrine was in one sense an evolutionary one. At least it was particularly interested in the development of what we term "self-consciousness," in the process of thinking where that arose. And it was the Hegelian thinkers who turned to the study of human institutions, but they did so on the economic and the political side. On the economic side, we have the Marxian doctrine of the human institution in the economic process. On the political side, we have the development of the state, especially the city-state. Hegel's son Karl was quite a notable author in the early study of the city-state, particularly of the way in which it developed. The whole study of so complex a dogmatic structure as the Roman law, for example, was brought back to an evolutionary consideration. Later, attention was directed toward social forms as social forms, apart from any dogmatic structure that lay behind them.

Take, again, the attitude of the community toward crime. On the evolutionary side, you go back to a situation, we will say, of blood vengeance. A man from one clan kills a man from another. Immediately there arises within the injured clan a man who is determined to revenge the death by killing someone from the other clan, and the next of kin sets out to kill the slayer. When he accomplishes this, he sets up at once the need of vengeance on the part of the first group. Again, the next of kin goes out to slay in his turn. And this process goes on until, we will say, the clans are nearly exterminated. Well now, when clans were brought together in a tribe in order to defend themselves against other tribes, such a decimation of fighting members of the group became a serious matter, and the tribe came to consider how this problem could be met. A court was worked out in which vengeance took the form of paying a fine. And some sort of a court had to be constituted which should pass upon obligations. In this way a means was gradually built up of getting rid of blood vengeance. There you have an evolutionary process in which the court arises.

When it is carried through and it becomes necessary to organize society more exactly and fit the penalty more definitely to what is felt to be the character of the crime, there arise all the penalties which belong to a court of law. And we get the institution of criminal law which still carries over some of this sense of vengeance which is to be enacted. There must be some suffering on the part of the man who has gone against the interests of the community, who has trespassed on the rights of others. In the older, medieval state the community was called together to witness the suffering of the individual who was being punished. The community thus got satisfaction out of the vengeance, particularly any specific individuals who were themselves injured by the so-called criminal. That element of vengeance demands that where some particularly outrageous crime has been committed, the community feels the need for somebody to suffer. And under such circumstances it is difficult to get impartial justice. It becomes more important to the community that someone should suffer than that the specific individual should suffer. So in our criminal law we have this motive of exacting suffering, and we have a partially worked-out theory which states that where a person has commit-

ted a crime he should pay by a certain amount of suffering for the wrong he has done. If the wrong is great, he must suffer more than if it is a lesser wrong. So we inflict punishment by putting him in prison. If the sin is heinous, he is put in for ten or twenty years; if lighter, for perhaps only a few weeks or months. We fit the punishment to the crime.

But we know that that process does not work at all. We have no such exactly measured sets of sufferings as to be able to put them accurately over against wrongs. When the sense of vengeance has died down, we are not sure whether we want the other person to suffer at all. We want to get rid of crime. And so we change our theory from wanting the person to suffer for a wrong he has done to seeing that we keep him from doing the same wrong again. So we have retribution, not in the sense of vengeance but as repression of crime itself. But you know how difficult it is to work those two motives together, trying to find out just how much repression of crime does take place through the action of the law. And when we come to juvenile offenses, we feel the situation should be approached from an entirely different standpoint. So we put aside criminal law, and we have the judge sitting with the boy or girl; we get members of the family, perhaps some person interested in social service, possibly the school teacher, and they all talk it over and try to find out just why what happened did happen, and they attempt to discover some situation whereby the criminal can be put back into a social position and be kept from doing the sort of thing he has done in the past. Thus we try to get rid of crime by a social process. That parole system has been carried over from the juvenile court into the adult court. Very good results have been obtained where politics has not come in to corrupt the process. There we have the development of an institution from both ends. You can see how, out of the attitude of vengeance, the court itself has arisen, and then how, out of the operation of an institution of that sort, one having conflicting motives in it, such as repression of crime on the one hand and a demand for vengeance on the other, that institution can be approached from the standpoint of reinstating the individual in society. There is a social problem here, the problem of an indi-

vidual who has abused the rights of somebody else but whom we want to put back in the social situation so that he will not do it again. There we have the development of a social process by a real scientific method.

We try to state the problem as carefully as we can. Here is a boy who has allied himself with a gang and has been carried away with the sense of adventure and has committed a burglary which could send him to the penitentiary for years. But that would be absurd. It would make a criminal out of him, and no good would be accomplished at all. It is very questionable whether it would even keep other boys from doing the same thing, for the sense of adventure makes the attitude of the criminal something attractive in itself. It is astonishing how, when we are somewhat relaxed by an attack of grippe or disease, we turn to criminal tales for our relief! If you go through the hospitals you will find such tales being read in great quantities. The creation of crime taken in itself can be looked at from the point of view of adventure, especially for the adolescent. If you approach things scientifically, you can see what the attitude is. You can see that the boy has approached it from this attitude of adventure, does not realize its import; and if he is made to realize it, you can make a very good citizen indeed out of him. What you want to do, then, is to state your social situation in such a fashion that you can reconstitute the boy as a normal citizen, give him opportunities for play in which he can express his demand for adventure with a recognition of what the rights are that make a possibility of citizenship. That has to be brought home to him. He wants to be a citizen in the community, and he has to see that he must have the same respect for the rights of others that he claims for himself. And at the same time you must have a situation where the boy can lead a normal life. Work out specific hypotheses, and by means of them you may get the boy back into society again.

Take any institution as such and look at it from the standpoint of evolution, the way in which that is determined in society, and then you can see the development in society itself of a technique which we call the "scientific technique," but it is a technique which is simply doing consciously what takes place natu-

rally in the evolution of forms. I have been pointing out that the process of evolution is one that meets such a problem as that of blood vengeance, where members of the tribe are at work killing each other as fast as they can. And the community works out there—in a somewhat bungling fashion, if you like—a court which undertakes to meet this situation. It becomes established, acquires a dogmatic structure, holds on to motives which belonged to the earlier situation. But finally we see the situation as one in which we try to do with self-consciousness what took place by a process of evolution. That is, we try to state the problem with reference to a particular child; we want to see what can be done toward bringing together what was a healthful expression of adventure on the part of the boy with rights which he himself claims. So the juvenile court represents a self-conscious application of the very process of evolution out of which the courts themselves arose.

What I am trying to do is to connect this entire evolutionary process with social organization in its most complex expression, and as that within which arise the very individuals through whose life-process it works, giving birth to just such elements as are involved in the development of selves. And, as I have said, the life-process itself is brought to consciousness in the conduct of the individual form, in his so-called self-consciousness. He gets a much more effective control over his environment than the ox can get over its. The process is one in which, in a certain sense, control is within his own grasp. If you think of it, the human being as a social form actually has relatively complete control over his environment. The animal gets a certain slight kind of control over its environment; but the human form, in societies, can determine what vegetation shall grow, what animals shall exist besides itself; it can control its own climate, erect its own buildings. It has, in a biological sense, complete control over its own environment. That is, it has attained to a remarkable degree an end which is implied in the whole living process—the control by the form of the environment within which it lives. To a degree human society has reached that goal.

It has often been pointed out, of course, that evolution does not reach any goal. The concept means simply the adaptation of a

form to a certain environment. But adaptation is not simply the fitting of the form into the environment, it carries with it some degree of control over that environment. And in the case of the human form, of human society, we have that adaptation expressing itself in a very high degree of control. Of course, we cannot change the chemical and physical structure of things, but we can make them over into those forms that we ourselves need and which are of value to us. That is possible for us; and, as I have said with reference to the question of food and to the question of climatic influences, we can in a very large degree determine that control. So there is, within limits, a development toward complete adaptation where that adaptation expresses itself in control over the environment. And in that sense I think we can fairly say that human organization, as a social organization, does exercise control and has reached a certain goal of development.

Well now, this social process I have been sketching in these broad strokes has become of increasing interest to reflective thought throughout this whole period. Of course, to some extent it has always been of essential interest to man in the social situation in which he lives. What I am referring to specifically is the character of the social organism—its organization, its history, and the conditions under which it can be controlled. The statement of the functions of the different parts of the social organism is that study which we have in a so-called "social science," and more particularly in sociology. This had its inception in the thought of Comte, and then was enriched by the idea of evolution as brought in by Spencer. From that time on, the attempt to understand human society as an organization has been of increasing interest to the Western world. Men have been trying to see the habits out of which society has arisen, to find out under what conditions it operates, and how problems that arise in it can be definitely controlled. This involves looking at human institutions from the standpoint I have suggested, that is, as social habits.

While during the century there has been this increased interest in the study of the social organization, there has been a corresponding interest in the experience of the individual. Part of this is due to our scientific attitude. As we have seen, it is the unique

experience of the scientist that presents the problem, and it is in the mind of the scientist that the hypothesis arises. It is not only in the scientist as such that this uniqueness of the experience has been recognized as of importance. After all, the scientist is simply making a technique out of human intelligence. His method is the same as that of all intelligent beings, even though it involves a simple rendering in self-consciousness of the whole process of evolution. That in the experience of all individuals which is peculiar to the individual, that which is unique in his experience, is of importance, and what the last century increasingly recognized was the importance of these unique individual experiences.

The emotional side of these experiences, as we know, registers itself in the folk poetry, in the lyric expression of the self—a registration of values from the point of view of the individual. There have always been some neat ways of scientific observation, although accurate presentation of it belongs really to the Modern world, that world which has grown up since the period of the Renaissance. But what I am particularly calling attention to is the interest we have in that which is peculiar to the individual as it is revealed in our literature, in our journals, and in our newspapers. The curious thing about the newspaper is that it records happenings to individual persons; and it assumes that it is of interest to us to know that a certain individual at a certain time was run over by an automobile or that a certain person fell down, hurt himself in such and such a way, and that John or Jane has had such and such an experience in such a place. It is curious to note the interest that centers about individuals, and the assumption that the world at large will be interested in these happenings.

Well now, what I want to connect with this journalese interest in happenings to particular individuals is the character of our literature, not simply in its lyric poetry, where the emotion of the individual is presented so that it can be handed on to others, but particularly in our novels and the drama. In these we have this interest in the experience of the individual presented as it has been during the last century because it does answer some very profound interest on the part of all the individuals who take up their morning and evening papers, who read all sorts of stories

and novels, go to movies, listen to the radio, get those experiences of other individuals which, as I say, have an interest for us which is rather astonishing when one just stands off and looks at the situation. They seem to be so unrelated. We seem to be interested in just a particular occurrence. We speak of it as sensational and perhaps are apt to regard it as an attitude not entirely helpful on our part when we are interested in this fashion.

What is the import of this interest? I wanted to bring this up in sharp contrast to what I am going to develop later, that is, that the human self arises through its ability to take the attitude of the group to which he belongs—because he can talk to himself in terms of the community to which he belongs and lay upon himself the responsibilities that belong to the community; because he can recognize his own duties as against others—that is what constitutes the self as such. And there you see what we have emphasized, as peculiar to others, that which is both individual and which is habitual. The structure of society lies in these social habits, and only insofar as we can take these social habits into ourselves can we become selves.

We speak of this interest on the emotional side as "sympathy" —passing into the attitude of the other, taking the role of the other, feeling the other's joys and sorrows. That is the effective side of it. What we call the "intellectual side," the "rational side," is the recognition of common stimuli, of common emotions which call out responses in every member of the group. And insofar as one indicates this common character to others, he indicates it to himself. In this way, of course, by taking the attitude of the others in the group in their co-operative, highly complex activity, the individual is able to enter into their experiences. The engineer is able to direct vast groups of individuals in a highly complex process. But in every direction he gives, he takes the attitude of the person whom he is directing. It has the same meaning to him that it has to others. We enter thus into the attitudes of others, and so make our very complex societies possible. This development of a form that is able so to communicate with others that it takes on attitudes of those in the group, that it talks to itself as it talks to others, that imports into its own life this conversation and sets up

an inner forum in which it works out the process that it is going to carry on, and so brings it to public consideration with the advantage of that previous rehearsing, is all important. Sometimes we find that we can best think out an argument by supposing that we are talking to somebody who takes one particular side. We have an argument to present, and we think how we will present it to that individual. And as soon as we present it, we know that he would reply in a certain way. Then we reply in a certain fashion to him. Sometimes it is easier to carry out such a conversation by picking out a particular protagonist we know. In that way in the night hours we are apt to go through distressing conversations we have to carry out the next day. That is the process of thought. It is taking the attitude of others, talking to other people, and then replying in their language. That is what constitutes thinking.

Of course, conditions are different in a human society from simpler situations. I was pointing out the difference between a human society and a society of invertebrates. The principle of organization is not that of physiological plasticity, not that of holding the form itself physiologically to its particular function; it is rather the principle of organization as found in the form of human intercommunication and participation. It is what the human individual puts into the form of significant symbols through the use of gestures. He is then able to place himself in the attitude of others, particularly into just such attitudes as those I have spoken of as human institutions. If institutions are social habits, they represent certain definite attitudes that people assume under certain given social conditions. So that the individual, insofar as he does take the role of others, can take the habitual attitude of the community against such social situations as these.

As I have pointed out, he does this in the process of indicating to others the important elements in a situation, pointing out those elements which are of importance in the social process, in a situation that represents one of these social habits, such as the family situation—one that involves the rights of different individuals in the community, such as a political situation. What the individual does is to indicate what the important characters in a co-operative

process are. He indicates this to other members of the community; but as we shall see, especially in the case of vocal gestures, he indicates it to himself as to others; and just insofar as he does indicate it to himself as to others, he tends to call out in himself the same attitude as in others. There is a common attitude, that is, one which all assume under certain habitual situations. Through the use of language, through the use of the significant symbol, then, the individual does take the attitude of others, especially these common attitudes, so that he finds himself taking the same attitude toward himself that the community takes. This is what gives the principle of social control, not simply the social control that results from blind habit, but a social control that comes from the individual assuming the same attitude toward himself that the community assumes toward him. In a habitual situation everyone takes a certain attitude insofar as the habit is one which all have taken, that is, insofar as you have "institutions." If, now, the individual calls out this attitude in others by a gesture, by a word which affects himself just as it affects others, then he will call out the same attitude in himself that he calls out in others. In this way he will be acting toward himself as others act toward him. He will admonish himself as others would. That is, he will recognize what are his duties as well as what are his rights. He takes the attitude of the community toward himself. This gives the principal method of organization which, as I have said, we can study from the standpoint of a behavioristic psychology, a method which belongs to human society and distinguishes it from social organizations which one finds among ants and bees and termites. There one finds societies that run up into the millions; and we find these as finely organized as human societies are, and so organized that individuals' lives are largely determined by the life-process of the whole. We get far more complex and intricate organization, of course, in human society than among the invertebrates. This principle to which I have referred—organization through communication and participation—makes an almost indefinite organization possible. Now the study of the way in which this organization takes place, the history of it, the evolution of it, is what has been opened up to the human mind in the last century. We now see the way in which

out of a primitive group there can gradually arise the very highly organized societies of the present day. We can study that process in the evolution of institutions, and we can see how that process is modified or may be modified in the presence of problematic situations.

This evolution also takes place in human society, but here it takes place not through physiological plasticity, not through the development of peculiar physiological functions on the part of the separate individuals. It takes place through the development of what has been referred to on the logical side as a universe of discourse. That is, it takes place through communication and participation on the part of the different individuals in common activities. It takes place through the development of significant symbols. It is accomplished almost entirely through the development of vocal gestures, through the capacity of the individual to indicate by means of his own gestures to other forms and also to himself, those elements which are of importance in co-operative activity. So far as we can see, the stimuli that keep the invertebrates occupied are those of odor and contact. But we find no evidence of any language among them. It is through physiological development and plasticity that their very complex communities operate. But the human form, subject to no such development as this, can be interwoven into a community activity through its ability to respond to the gestures of other forms that indicate to it the stimuli to which it is to respond. We point things out. This pointing-out process may be with the finger, by an attitude of body, by direction of head and eyes; but as a rule it is by means of the vocal gesture, that is, a certain vocal symbol that indicates something to another individual and to which he responds. Such indication as this sets up a certain definite process of pointing out to other individuals in the group what is of importance in this co-operative activity.

The peculiar importance of the vocal gesture is that it affects the individual who makes it just as much as it affects the individual to whom it is directed. We hear what we say; if we are talking with our fingers we see what we are saying; if with attitudes of the body, we feel what we are saying. The effect of the attitude

which we produce in others comes back on ourselves. It is in this way that participation arises out of communication. When we indicate something to another form, we are calling out in that other individual a certain response. The very gesture we make calls out a certain sort of response in him. If that gesture affects us as it affects him, it has a tendency to call out some response in ourselves. The gesture that affects another, when it is a vocal gesture, is one which may have the tendency to influence the speaker as it influences others. The common expression of this is that a man knows what he is saying when the meaning of what he is saying comes to him as really as it goes to another. He is affected just as the other is. If the meaning of what he says affects the other, it affects himself in the same way. The result of this is that the individual who speaks, in some sense takes the attitude of the other whom he addresses. We are familiar with this in giving directions to another person to do something. We find ourselves affected by the same direction. We are ready to do the thing and perhaps become irritated by the awkwardness of the other and insist on doing it ourselves. We have called out in ourselves the same response we have asked for in another person. We are taking his attitude. It is through this sort of participation, this taking the attitudes of other individuals, that the peculiar character of human intelligence is constituted. We say something that means something to a certain group. But it not only means that to the group, it also means that to us. It has the same meaning for both.

There is a certain, what we would call "unconscious direction" that takes place in lower vertebrate forms. A group of animals is said to set up a sentinel. Some one form is more sensitive than others to stimuli of danger. Now the action on the part of this one which is more sensitive than the rest, the action of running from danger, for example, does cause the other forms to run also. But the first one is not giving a signal in the human sense. It is not aware of giving such directions. Its mere running is a stimulus to the other forms to run in the same direction. It works in the same way as if the form knew what its business was, to catch the first evidence of the enemy and give the evidence to the whole group, thus setting them all going. But in the experience of the

animal there is no such procedure, no such intent. The animal does not influence himself as he influences others. He does not tell himself of the danger as he tells it to others. He merely runs away.

The outstanding characteristic in human communication is that one is making a declaration, pointing out something that is common in meaning to the whole group and to the individual, so that the individual is taking the attitude of the whole group, so far as there is any definite meaning given. When a man calls out "Fire!" he is not only exciting other people but himself in the same fashion. He knows what he is about. That, you see, constitutes biologically what we refer to as a "universe of discourse." It is a common meaning which is communicated to everyone and at the same time is communicated to the self. The individual is directing other people how to act, and he is taking the attitude of the other people whom he is directing. If in this attitude of the other person he makes an objection, he is doing what the other person would do, and he is also carrying on the process which we call "thought." That is, you indicate to somebody else that he is to do something, and he objects to it. Well now, the person might in his attitude of the other make the same objection himself. You reply to the other person, trying to point out his mistake or admitting your own. In the same way, if you make some objection, you reply to your own objection or admit your mistake to yourself. Thinking is a process of conversation with one's self when the individual takes the attitude of the other, especially when he takes the common attitude of the whole group, when the symbol that he uses is a common symbol, so that it has a meaning common to the entire group, to everyone who is in it and anyone who might be in it. It is a process of communication with participation in the experience of other people.

The mechanism that we use for this process is words, vocal gestures. And we need, of course, only a very few of these as compared with those we need when talking to others. A single symbol is enough to call out necessary responses. But it is just as real a conversation in terms of the significant symbols of language as if the whole process were expressed. We sometimes do our thinking

out loud, in fully organized sentences; and one's thought can always presumably be developed into a complete grammatical unit. That is what constitutes thinking.

Now, it is this inner thought, this inner flow of speech and what it means—words with their meanings—that call out intelligent response; it is this that constitutes the mind, insofar as that lies in the experience of the form. But this is only a part of the whole social process, for the self has arisen in that social process; it has its being there. Of course, you could carry such a self as that over to a Robinson Crusoe island and leave him by himself, and he could carry that social process on by himself and extend it to his pets. He carries that on by himself, but it is only because he has grown up in society, because he can take attitudes and roles of others, that he can accomplish this.

This mental process, then, is one which has evolved in the social process of which it is a part. And it belongs to the different organisms that lie inside of this larger social process. We can approach it from the standpoint of evolution; and we can approach it more particularly from the standpoint of behavioristic psychology, where we can get back to what expresses itself in the mind. We also can get somewhat underneath the experience that goes on in the self in what we term "pathological psychology," a psychology that enables us to get hold of the various processes that are not themselves evidenced in this stream of inner conversation to which I have referred. The term "pathological" simply means that this type of psychology has been pursued largely in dealing with pathological cases. It is a study, for example, of the way in which our special world arises in our experience through our distance senses and our contact experiences—through the collation of the elements which we reach through vision and with the elements which we reach through the tactual sense—the process by which we have built up an implemental world by the use of our hands; for example, the process by which, for purposes of food, we reach with the hand for a distant object. Man comes into that process and gives to the organism a physical thing which is not the food, not the consummation, whatever it may be, but a physical thing. Our world is made up out of physical things. We deal with things

as if we could handle them. We think of things as being "pulverized," broken up into parts so we can get hold of them. A physical thing is a unit into which we break up our environment. The process by which we build our world of physical things is a process, too, of which we are not immediately conscious. The child, the infant that is uncertainly groping toward a ball, is gradually building up a world of such physical things; but the process takes place underneath the level of our own consciousness. We cannot get at it in its immediate inception, only indirectly by this type of psychology, a psychology that does enable us to get into the workings of the individual process as it lies inside of the whole social process to which it belongs.

And this is what constitutes the self as such. A self which is so evidently a social individual that it can exist only in a group of social individuals is as much a result of the process of evolution as other biological forms. A form that can co-operate with others through the use of significant symbols, set up attitudes of others and respond to them, is possible through the development of great tracts in the central nervous system that are connected with our processes of articulation, with the ear, and so with the various movements that can go on in the human form. But they are not circumscribed within the conduct of a single form. They belong to the group. And the process is just as much an evolution as is the queen bee or the fighter among the ants. In those instances we get a certain particular evolution that is taking place, belonging to a certain particular society, one which could exist only in such a society. The same is true of the self. That is, an individual who affects himself as he affects another; who takes the attitude of the other insofar as he affects the other, insofar as he is using what we term "intelligible speech"; who knows what he himself is saying, insofar as he is directing his indications by these significant symbols to others with the recognition that they have the same meaning for them as for him; such an individual is, of course, a phase of the development of the social form. This is a branch of what we term "behavioristic psychology," one in which we can see how the self as such has developed.

What I want to make evident is that the development, the evolution, of mind as well as of institutions is a social evolution. As I

have just stated, society in its organization is a form, a specie that has developed; and it has many forms developing within it. You see, for example, at the present time in reference to the question of food that the problem is one which is met by very intricate social organizations. Where the individual himself responds simply to the odor or sight of food, we recognize it as a biological process. When the whole community responds to the need of food by the organization of its industries, of agriculture, of milling, of transportation, of cooking and preparation, we have the same process, only now, not by separate individuals, but by a social organization; and that organization is just as really an evolution as the stomach of the ox. That stomach is very complicated. The evolution of a social mechanism by which grain is sowed and reaped in South America and North America, is carried to great milling establishments and there converted into flour, and then carried and distributed by dealers so that the individual groups can get it and prepare it in such fashion that it can be readily assimilated—that is just as much evolution as the development of bacteriological laboratories in the digestive tract of an ox. It is a process, however, which takes place much more rapidly than it is taking place in the case of the ox. There we have something that answers to a physiological plasticity in the case of invertebrates—the adjustment of different organs within the body to accomplish what we accomplish by mechanical means. It is this ability to control our environment that gives us what we term "mind."

What we attach to the term "mind" particularly is its privacy. It belongs to the individual. And what takes place there takes place, we say, in the experience of the individual. He may make it accessible to others by telling about it. He may talk out loud. He may publish. He may indicate even by his uncontrolled gestures what his frame of mind is. But there is that which goes on inside of a man's mind that never gets published, something that takes place within the experience of the individual. Part of it, of course, is that which answers to what is going on in the physiological mechanism there, the suffering that belongs to one's teeth, the pleasure one gets in the palate. These are experiences which he has for himself because they are taking place within his own organism. But, though they are taking place within his own

organism, and no one else can experience the same thing, the organism does not experience it as its own—it does not realize that the experience is its own—until a self has arisen. We have no reason to assume, for example, that in lower animals there are such entities as selves; and if no such entities, then that which takes place within the organism cannot be identified with such a self. There is pain; there is pleasure; there are feelings which are not exactly painful or pleasurable, such as heat or cold. These various feelings belong to the organism, the tensions of the various muscles, the movements of the joints, so essential in our intelligent social conduct. These belong to the organism in a certain sense. But the individual animal does not associate them with a self because it has no self; it is not a self.

A self can arise only where there is a social process within which this self has had its initiation. It arises within that process. For that process, the communication and participation to which I have referred is essential. That is the way in which selves have arisen. That is where the individual is in a social process in which he is a part, where he does influence himself as he does others. There the self arises. And there he turns back upon himslf, directs himself. He takes over those experiences which belong to his own organism. He identifies them with himself. What constitutes the particular structure of his experience is what we call his "thought." It is the conversation which goes on within the self. This is what constitutes his mind. For it is through this so-called "thought," of course, that he interprets his experiences. Now that thought, as I have already indicated, is only the importation of outer conversation, conversation of gestures with others, into the self in which the individual takes the role of others as well as his own role. He talks to himself. This talking is significant. He is indicating what is of importance in the situation. He is indicating those elements that call out the necessary responses. When there are conflicts, the problem gives rise to the hypotheses that form in his mind; he indicates them to himself and to others. It is this process of talking over a problematic situation with one's self, just as one might talk with another, that is exactly what we term "mental." And it goes on within the organism.

Part II

3

THE NATURE OF SCIENTIFIC KNOWLEDGE

We have reached certain points in the implications of the method of experimental science which may be summarily restated. In the first place, the scientist's knowing is a search for the unknown, a discovery, but it is a search for what has disappeared in the conflicts of conduct, that is, for objects which will remove the antagonism—it is a search for the solution of a problem. This dissipates the Platonic puzzle of how we can seek to know what is unknown. Plato's solution of the puzzle is found in the form of ignorance as a problem, that of recollecting what has been forgotten. Unfortunately this theory could not apply to the discovery of new types of objects which were foreign to the world of past experience.

In the second place, experimental science implies a real world uninfected by the problem, which can be used to test the discoveries which science makes. If knowledge is discovery of the unknown, this world is not known—it is simply there.

In the third place, as the world that is there is not known and may not therefore as non-known have ascribed to it the logical necessity that does obtain in the logical structure of hypotheses,

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experimental science finds nothing contradictory in the later appearance of a problem which has been used to test the solution of a former problem. That a contradiction should appear in the hypothesis is proof of its faulty and, in that sense, unreal character, but that the sun ceases to be an object revolving about the earth in no way invalidates the world by which we test the hypothesis of the revolution of the earth on its axis by the shifting of the path of the pendulum's swing. Logical necessity obtains in the field of reflective thinking. To transfer it to the world that is there, and within which thought is occupied in the solution of problems, would be to dismiss experimental science as a meaningless and pernicious discipline and to return to the science of dogma.

In the fourth place, in observation and in experiment, science finds a field that belongs both to the world that is there and to the reflective thought of discovery, that is, of knowledge. The problem does not exist *in vacuo*. It is in the world that is there, but a certain portion of the world that is there has disappeared. The disease that is conveyed by contact disappears in the evidence of sporadic cases, notwithstanding its epidemic character. But the scourge is all the more tragically there. The instances of the disease are now observed and recorded by physicians and health officers who are seeking to discover the mechanism of the spread of the infection. These data embodied in various hypotheses exist in the minds of the investigators. As the observations of competent investigators of the actual epidemic, they are there as parts of the experiences of these individuals and the records of them are parts of their biographies. The test case of the heroic scientist, who has remained immune to the fever after wearing the clothes of those who were sick and sleeping in their beds and who succumbs to it when stung by the mosquito, begins in the field of scientific data and personal biographies and ends in the impersonal world to which belongs the two-chaptered history of the yellow-fever parasite. Insofar as these data are imbedded in the lives of these individuals, they are personal but hard facts. So long as they are tentatively suggestive of objects that would harmonize conflicting ways of cataloguing and treating the disease, they are in the minds of men as part of the structure of their ideas.

We must distinguish here between what belongs to the experience of the individual *qua* individual and what is in his mind and may be termed "subjective." In the former sense the observation may be called private because the investigator alone observes it. Indeed it may be such an instance that he alone can observe it, if, for example, it is his own ache or pain, or if no one else has seen it, and it is an instance that is not repeated. This circumstance does not abstract it from the world that is there, since these men are there in that world together with the events that take place in their lives. But, insofar as the experience suggests what is known of the relation of the mosquito to malaria and a possible parasitic organism that may be the cause of yellow fever, we are in the presence of an idea and of what we will call "subjective." Such an object is not as yet there and may never be there. It is an ideal object. Such objects have the same locus as erroneous objects after the error has been detected and are not to be confused, because they are placed in individuals' minds, with individuals' experiences, which are peculiar to them, but are objects in the world that is there. I am not ignoring the problems involved in this distinction. I am merely insisting that experimental science never take the position so common in philosophy, which confuses the two. To the experimental scientist the data of observation and experiment never lose the actuality of the unquestioned world because they can happen only in the lives of particular individuals or because they are fitted to serve in the mental processes of discovery. They are solid realities that can bridge the gaps between discredited theories and the discoveries of science.

It is the position of the positivist that what is observed is as a fact of experience, there in a sense in which it never can be false. He recognizes that there may be false inferences drawn from the observation or the experiment, but as a fact of immediate experience it simply is and therefore is not open to possible question. This assumption does not answer to the procedure of science, for whatever may be the theory of sensation, the scientist's observation always carries a content or character in what is observed that may conceivably be shown under other conditions to be erroneous, though the probability of this be very slight. In psychological

terms, an observation is never a mere determination of a sensation (if there is any such thing in adult experience) but is a perception, and, whether all perceptions involve judgments or not, they are frequently illusory as in the perceptions of mirrored objects, and can never be free from the possibility of analogous errors.

What gives to the observation or experiment its validity is its position in the world that is there, that is not questioned. It is indeed carefully isolated from what has fallen into question, and this meticulous cleansing from all implications of the abandoned doctrine, and all as yet hypothetical interpretations, creates the impression of an experience which may not be subjected to any further question; but, as we know, there is no part or portion of the world that may not conceivably be the field of a scientific problem.

In the so-called exact sciences we seem to approach an object which is nearly free from all possibility of contingency—the physical particles. These particles are approximations to that which is unextended in space and time, but they carry a character —that of mass or of electrical energy—which does not approach zero, however minute it may become, and it is a character which is reached from numberless observations and not a little speculative theory. Furthermore, the procedures in our laboratories and observatories by which these characters are reached involve perceptual objects of the most complex nature, subject under other conditions to all sorts of conceivable questions. In other words, while the methods of mathematical analysis and extensive abstraction constitute a body of doctrines which in themselves are necessary, as long as the terms carry the same references, their applications are dependent upon their functioning within the problematic situations which arise in research science and appeal for their validity in practice to the court of observation and experiment.

The scientist's attitude is that of a man in a going concern which requires at various points readjustments and reconstructions. The success of the readjustments and reconstructions is found in the triumph over the difficulty, as evidenced by the fact

that the concern continues to operate. He finds his tests in the parts of the whole which still operate. This does not imply that readjustments cannot be called for later at these very points to which he now appeals for confirmation of the success of his solutions of the immediate problems before him. Surrounding the most profound analysis of the structure of matter, and the widest survey of the galaxies of the heavens, lies the field of things within which experiment and observation take place without question, and which gives its validity to cosmologies and electronic theories of matter. It may seem a misnomer to speak of the world within which lie the observation and experiment as surrounding such hypothetical constructions as the electrical theory of matter or the galactic form of the universe, since these hypothetical constructions so far transcend, in the subatomic world or in the indefinite stretches of the heavens, all the world of objects which includes our observations and experiments. We seem rather to be islanded in a very minute region occupied by perceptual objects that are in their constitution vague, indeterminate, and incurably contingent, surrounded from within and from without by a universe, that is occupied by objects that approximate exactness of definition and necessity in their forms and changes. And yet the scientist, when he times microscopic oil drops as they move toward or away from charged plates, or when he measures the distances of photographed stars from one another before and during an eclipse, has not at all the attitude of a man perched insecurely upon obscure and adventitious data. The world that is there has taken up into itself all the order, definition, and necessity of earlier scientific advance. It is not there as hypothesis, insofar as the hypotheses have justified themselves in experiment, nor is it there as analyzed relations, events, and particles. These characters have passed into things, and for the time being at any rate, they are there unanalyzed, with the same authority as that of the so-called sensible experience. It is only necessary to emphasize again the distinction of the data as parts of the mental process of anticipating hypothetical objects, and as imbedded in the world of unquestioned reality in the experience of the individuals to whom the

problem has come and who are trying to solve it, as well as in the impersonal world within which these individuals exist.

What renders such a statement of the world (not as known but as there) somewhat bizarre is that we enter the world of the scientist by the process of learning. In schools and institutions of higher learning we are taught the doctrines of modern science. Most of us take no part in the work of discovering what is there found out, but we acquire it by a process of learning, in which we may retrace some of the steps which research has followed, while in the main we accept it largely on faith in the men and their methods, especially faith in the checking-up of the results of certain individuals by all the others in the field. Scientific journalism as well as the daily press keeps us informed of the latest advances, and, having learned these facts, we say that we now know them. The world that stretches so far beyond our experience seems in this sense a world of knowledge.

It is true that all acquirement of information, insofar as it is more than a mere parrot-like facility in repeating what is read or heard, is a reflective process in which a problematic situation is met with discovery, though the hypotheses and their tests are those of others. Our own hypotheses and tests have to do largely with the competence of the sources upon which we draw. Admitting, however, all the criticism that the layman can bring to his education, this world of knowledge is evidently of quite a different character from the world that is there, the world that is seen and felt, whose reality is the touchstone of our discoveries and inventions and very different from the discoveries and inventions themselves, which are the knowledge par excellence of research science.

It is in the acquirement of information that the copy theory finds its explanation. There, what is known must answer feature for feature to its prototype. This field of so-called knowledge is that of the assimilation of the experience of others to one's own experience. There may be involved in it the discovery of these other experiences by the individual, and it is insofar knowledge, but the content of that which is said to be learned is not discovered in the sense in which the other has discovered it.

In its simplest form what takes place here is the indication to

one individual by another of an object which is of moment in their co-operative activity. This gesture becomes symbolic when it arouses in the individuals the attitudes which reaction to the objects involves, together, generally, with some imagery of the result of that action. It becomes communication when the individual indicating the object takes also the attitude of the individual to whom he is indicating it plus that of his response, while the individual to whom the object is indicated takes the attitude of him who is indicating it. We call this taking of one another's attitudes consciousness of what we are doing and of what the other is doing, and we incorrectly apply the term "knowledge" to this. The mechanism and import of this social procedure will be discussed later. What I wish to point out is that this process in itself does not involve discovery, any more than does that of perception. When doubt and discrepancies arise in the process of communication, the necessity of establishing agreement between the symbols mutually used, and that which they symbolize and the results of the conduct they imply, calls for a one-to-one correspondence between the symbols and those things and characters symbolized in the experiences of the different individuals, and this gives rise to the theory of knowledge as an agreement between the state of mind and that which is known. Such a determination of mutual agreement in co-operative conduct is indeed essential, not only to this conduct, but to what is called "thinking" in the individual, but it is not a discovery of that which needs to be known. It is at most a part of the technique by which the discovery is made. When the discrepancy arises, we must discover what the import of the symbols is, and here real knowledge takes place. We find out what the other person is referring to—in common parlance, what he means—but the process can go on without discrepancies. The other indicates to us what is there, and our so-called consciousness of this need not introduce any reflective attitude in our conduct. To call the correspondence between the attitudes involved in pointing out a savage dog and the conduct which takes place "knowledge," whether one points it out to one's self or to another, is to give to "knowledge" an entirely different value from that involved in discovery.

In any education that is worthy of the name, what is acquired does go toward the solution of the problems that we all carry with us, and is the subject of reflection, and leads to the fashioning of new hypotheses and the appearance of new objects; but this takes place after the communication which is the mutual indication of objects and characters by the use of gestures which are common symbols, that is, symbols with identical references. The correspondence theory of knowledge has grown up around the recognition of the relation between that which the symbol refers to in the object and the attitudes of response in others and in ourselves. There is here a one-to-one correspondence, but the relation of these objects and their characters to what we can infer from them in the discovery of the novel element which meets our problematic situations is of an entirely different sort.

In this "meeting of minds" which takes place in conversation, learning, reading, and thinking, there are generally present problematic situations and discovery, though this is by no means always the case. If someone informs us that an expected acquaintance has arrived, there is no more of a problem, or discovery in the sense of a solution, than would be involved in the friend's appearing around the corner. The varied landscape and hurry of events that sweep us along in books of travel and adventure embrace no more of reflection than the travel and adventure in which we are involved. A great deal of learning is a direct following of indications, or a gradual taking-over of the form and technique of others that goes on without inference. A good deal of thinking even, notably much of reverie and also straight-away ordering of conduct in an unquestioned situation, may be free from dubitation and ratiocination. A field of concentrated inferential thought does include the common reference of symbols in conversation, writing, and thinking—that part of logic which has to do with the technique of communication either with others or with one's self—together with the epistemologies and metaphysics which have sprung from this and obscured it with their tangled and forest growth. Here lie the problems of successful reference to identical objects and characters through identical symbols mutually employed by different selves, and these problems are of pe-

culiar interest and importance to those involved in the exact and mathematical sciences. These problems demand theories of definition and implication, insofar as this does not depend upon the concrete content of that to which reference is made.

The environment of living organisms is constantly changing, is constantly invaded with other and different things. The assimilation of what occurs and that which recurs with what is elapsing and what has elapsed is called "experience." Without anticipating a later discussion of the social nature of the self and of thinking, I shall claim that the analysis of experimental science, including experimental psychology, never operates in a mind or an experience that is not social, and by the term "social" I imply that in the thought of the scientist the supposition of his mind and his self always involves other minds and selves as presuppositions and as standing upon the same level of existence and evidence. It may be that the scientist, in a self-centered moment, might think away all else but his self and its thinking, but even if in imagination he succeeded in annihilating all save the dot on the *i*, its having any thoughts at all would depend entirely upon its preserving its previous habits of conversing with others and so with himself; and, as this precious hoard of past experience wore away under incessant use and decay, the dot would follow the *i* into nonentity. The dividend that I wish to see declared on this social nature of mind and the self is the equal immediacy that may attach to the assimilation of others' experience with that of our own. We so inevitably utilize the attitude of the other, which is involved in addressing ourselves and in attending to him, that we give the same logical validity to what he relates of his experience as that which we give to what we relate to ourselves of our own past experience, unless on other grounds we are occupying the seat of the critic. It has, of course, only the validity that attaches to a relation, and is one remove from the assurance that attaches to the so-called memory image. But this validity at this remove is all that we can claim for most of our memory. Memory images constitute but a minute part of the past that stretches out behind us. For most of it we depend upon records, which come back to one form or another of language,

and we refresh our memory as surely in inquiring of a companion what took place on a certain occasion as in questioning ourselves. His testimony may not be as trustworthy as our own because of difference of interest and possible prejudice, but on other occasions for the same reason his testimony may outrank our own in reliability. While the actual image of the event has an evidential character that is peculiar, not infrequently it may be shown by the testimony of others to have been the product of imagination or to have been shifted from its proper place in the record. But still more fundamentally, the building-up of a memory record involves, in the first place, a social world as definitely as the physical world, within which the events took place, and involves, in the second place, experience which was actually or potentially social in its nature to the extent that whatever happens or has happened to us has its character over against actual or possible audiences or observers whose selves are essential to the existence of our own selves, the mechanism of whose conversation is not only as immediate as our replies but, when imported into the inner forum, constitutes the mechanism of our own thought.

I am anticipating the detailed presentation of this doctrine of mind to make clear my distinction between information and knowledge as discovery through inference. Information is the experience arising from the direction of attention through the gestures of others to objects and their characters, and cannot be called "knowledge" if that term is denied to perception as immediate experience under the direction of the attention springing from the organic interest of the individual. Perception is not itself to be distinguished from information, insofar as one uses a social mechanism in pointing out objects and characters to himself as another. The perceptions of a self may be already in the form of information. Logically stated they exist in a universe of discourse. Knowledge, on the other hand, deliberately fashions hypothetical objects whose reality it tests by observation and experiment. The justification for this is found in the actual disappearance of objects and their characters in the problems that arise in conduct.

Actually so much both of perception and of information is

shot through with reflective construction and reconstruction that it is difficult to disentangle them. It is, however, a part of scientific technique to accomplish this disentanglement. Observations and experiments are always in the form of information, even while they are being made, but they are scrupulously teased out from the web of inference and hypothesis. From this purity depart in varying degrees our perceptions as well as our information. It is a commonplace that one may be very well informed and do very little thinking, indeed be quite helpless over against a situation in which the information must be used to suggest or test hypotheses. The reliability itself of the observation or information, however, does call for a certain sort of verification, that of its repetition, either in the experience of the individual or in the mouths of other witnesses, and here, as above remarked, we find the source of the copy or correspondence theories of knowledge. Indeed, if information is knowledge, the copy theory of knowledge is entirely legitimate.

In presenting the world that is there as in some sense surrounding what is problematic, it was stated that what had in the past been approved by experiment and observation was taken up into this world and resided there as organized objects, things behaving toward one another in expected manners. Over against these unquestioned things lie the elements and relations of the working hypotheses of science. These are in a peculiar degree the objects of our knowledge. They are still lacking in complete verification. They are received only provisionally, and the objects which we constitute by means of them are complex hypotheses anticipating further tests in the use which we make of them. While they work, they pass as objects, but always with a proviso attached, which keeps the scientist's attention alive to possible departures from the result which the hypothesis implies. He is looking for such departures and eager to find them. In such far-reaching speculations as those regarding the structure of matter this field of knowledge is enormously extended, though it does not actually include the world within which the observation and experiment themselves take place, though the analysis which the investigation involves extends into the world of unquestioned things. For the

purposes of our calculations we state the apparatus of our laboratories, for example, in the same terms which we use in our hypothetical constructions and thus seem to bring them within the scope of the investigation. But the scientist is in no doubt in regard to the distinction between the finding of fact and the hypothetical form in which he has stated things which are there, irrespective of the validity of the expressions into which they have been translated. Such translations may be perhaps called "objects of knowledge," though with the recognition that the success or failure of the hypothesis, into the terms of which we have translated these unquestioned things and their processes, does not affect their reality in the observation or experiment. In this sense there is no limit to the field of knowledge, for we may state the whole universe in terms of such working hypotheses, if we only remember the limits of this formulation. But it is also necessary to recognize that the *raison d'être* for translation is found in the function of the apparatus of experimental science and not in the revelation of reality. What reveals this latter fact is the ineradicable difference between the immediate concrete event to which appeal is made in experiment and observation and any formulation of this in terms of a current working hypothesis. The actual position of the spectral line, or of the photographic image on the plate, is the brute fact by which the hypothesis is tested, and there is no methodological relation between the exactly determined position of these and a resolution of them into, say, electrons. It is conceivable that this should be done, but it would vastly confuse and delay the attainment of any knowledge from the measurement and would have no conceivable connection with getting that knowledge. To call such a translation "knowledge" is to depart from the significance which the term "knowledge" has in an experimental science.

The world, then, in which science operates has, at its core and in a certain sense surrounding its findings and speculations, the environment of immediate experience. At the point of its problems the immediate things are so analyzed that they may pass into the formulations of the scientist's hypothesis, while the finding of observation and experiment remains immediate experience, that

is, located in the surrounding borderland. It is these two aspects of the world of immediate experience that call for especial attention. From the standpoint of the discovery of the new, from the standpoint of research, the world of immediate experience is a core and seems to be reduced to the island of vague, indeterminate, and contingent data that are contrasted with the clear-cut, sharply defined, and necessary elements and events of scientific theory; an apparently incongruous situation, for the acceptance of the clear-cut, sharply defined, and necessary world is dependent upon the findings in the island of vague, indeterminate, and contingent data, the field of observation and experiment. It is an apparent incongruity that has given birth to much philosophic speculation.

That the incongruity is only apparent is fairly evident, since the scientist, out of whose method and its achievements it has arisen, is not aware of it. If it were presented to him in the terms just used, he would presumably reply that one cannot both have his cake and eat it; that, if one is in search of definition and certainty at a point in experience at which they have disappeared, it is but natural that the definition of the problem should exhibit this fact of their disappearance and that the very data which will serve in the verification of a hypothetical order of defined and necessary things must be themselves infected with indeterminateness and contingency; that the home of experimental medicine is in the hospital; that the gospel of science summons not the logically righteous but sinners to repentance. He would likely add, however, that because, before the discovery of the germ of yellow fever, the clinical picture of the disease was indeterminate and its incidence contingent, there would have been no justification in ascribing the same indeterminateness and contingency to the clinical picture of diphtheria—in other words, that the form in which the data appear in any one problem is pertinent to that problem alone.

But while the statement of the problem, together with the observation and experiment that are involved in verification, constitutes a core of immediate experience whose analyzed elements are indeterminate and contingent as compared with defined elements

and necessary relations in a hypothetical scientific theory, these data do belong to objects in an immediate world that is a going concern, and as such is unquestioned. Such a world may be said to contain the problem within itself, and so to surround the problem. It has taken up into itself the solutions of past problems successfully solved. There is involved in it also a considerable apparatus of working hypothesis, which is not always distinguished from the world that is there. The distinction lies in the fact that back of the working hypothesis there is always a question mark, and in the back of the scientist's mind in using the working hypothesis lies the problem implied in its being only a working hypothesis. The world that is there is the common world within which the intelligent community lives and moves and has its being. In physical diameter it may be a small world as compared with the scope of physical hypotheses which in a logical sense it surrounds. Its logical compass of the hypothesis is shown in the data of observation and experiment that must be brought to bear upon the hypothesis before it can be established.

This compass of the problem, and the hypothetical solution of it, is logical insofar as the analysis involved in the problem, the inference involved in the formation of the hypothesis, and the sufficiency of evidence involved in observation and experiment all rest upon a world of things that is there, not as known, but as containing conditions of knowledge. But the world that is there includes and surrounds the problem in the sense that the problem is also there within the field of conduct, for, as has been indicated, the problem arises in the conduct of individuals and out of the conflict of acts which inhibit one another because the same object calls out mutually antagonistic responses. When these problems pass into the field of reflection, they are so formulated that they would occur in any experience, that is, they take on a universal form. Such a formulation is essential to the reflective process of their solution. Their actual occurrence, however, in the world that is there awaits the advent of the conflict of responses in the experience of some individual; and the solution as well, inasmuch as it departs from the common or universal habits of the community, must be an individual achievement before it can become the atti-

tude of all and be thus universalized. So located in its historical setting, the problem is evidently as completely surrounded by the world that is there as the hole left by a name that has been forgotten is surrounded by all the other names and things and happenings by which one attempts its recall. But while occurrence of the problem and of its solution must be in the field of conduct of some one individual, the things and events that constitute its border are matters of common and undisputed validity. The problem must happen to an individual, it can have no other locus than in his biography, but the terms in which he defines it and seeks its solution must be universal, that is, have common import.

This location of the problem in the experience of the individual in its historical setting dates not only the problem but also the world within which that problem arises. For a world within which an essential scientific problem has arisen is a different world from that within which this problem does not exist, that is, different from the world that is there when this problem has been solved. The world of Daltonian atoms and electricity (which was considered a form of motion), within which appeared the problem of the ion in electrolysis and the breakup of the atom in radioactive substances, is a different world from that whose ultimate elements are particles of electricity. Such worlds dated by the problems upon whose solutions they have appeared are social in the sense that they belong to the history of the human community, since reflective thought is a social undertaking and since the individual in whose experience both the problem and its solution must arise presupposes the community out of which he springs.

It is the double aspect of these worlds that has been the occasion of so much philosophic speculation. On the one hand, they have provided the tests of reality for experimental science, and, on the other, they have successively lost their validity and have passed away into the realm of ideas. I have already indicated the scientist's rejoinder to this apparent assault upon his method. His method implies not that there has been, is, or will be any one authentic world that constitutes the core and envelope of his problems, but that there always have been, and are, and will be facts, or data, which, stated in terms of these different worlds by the

individuals in whose experience they have appeared, can be recognized as identical; and that every world in which problems appear and are attacked by the experimental method is in such a sense a going concern that it can test hypothetical solutions. I have further insisted that as a scientist his goal in the pursuit of knowledge is not a final world but the solution of his problem in the world that is there.

There have existed two different attitudes toward these so-called facts or data. Because it has been assumed that old watchers of the heavens in the valley of Mesopotamia, and of Hipparchus, and of Tycho Brahe, and present astronomers possessed a certain identity, there has arisen a picture of the world made up of that which can be regarded as common to all, a picture made of abstractions. It is a picture through which we can look before and after and determine the date of Thales when he predicted an eclipse, and what eclipses will take place a thousand years hence. If we assign a metaphysical reality to these facts, then we reach a universe which has been the subject matter of popular and technical philosophies. If, on the other hand, we restrict ourselves to the determinations of experimental science, then we have nothing but the common indication of things and characters in a world that is there, an indication that abstracts from all but that which is there when a problematic situation has robbed it of some object and concentrates attention upon those characters and things which are the stimuli to mutually inhibiting responses. As I have already insisted, it is only in the experience of the individual, at some moment in that experience, that such a conflict can take place. Nonproblematic things are there for everyone. But while these observations took place in individual experiences, in the experiences of those individuals for whom these problems arose, it is the assumption of experimental science that a like experience would have arisen for any other individual whose experience had been infected with the same problem and that, insofar as successive problems have involved identical problematic elements, it is possible to identify the same observation in the experience of different individuals.

The Mesopotamian soothsayer who had hit upon the succes-

sion of the eclipses and enshrined it in the Great Saros and the Greek astronomer who by a scientific explanation of the eclipses had worked out the same succession, and the modern Copernican astronomer who substitutes the motion of the earth in its orbit for that of the sun about the earth and dates these eclipses still more accurately, were all observing the same phenomenon. For each there was a different world that was there, but in these worlds there were actual or identical observations of individuals which connect these worlds with one another and enable the later thinker to take up into his own the worlds that have preceded his. The common content of these observations, by means of which different worlds are strung together in human history, depends upon the assumption that different individuals have had or would have the same experiences. So far as there is any universality in these contents, it goes back to an actual or implied indication of the same things and characters by different individuals, in the same or like situations, that is, it goes back to implications in regard to social behavior in inferential processes, especially to the social nature of the knowledge or evidential import of observation.

However, the experimental scientist, apart from some philosophic bias, is not a positivist. He has no inclination to build up a universe of such scientific data, which in their abstraction can be identified as parts of many different worlds. The reference of his data is always to the solution of problems in the world that is there about him, the world that tests the validity of his hypothetical reconstructions. Nothing would more completely squeeze the interest out of his world than the resolution of it into the data of observation.

Part III

4

MIND APPROACHED THROUGH BEHAVIOR—CAN ITS STUDY BE MADE SCIENTIFIC?

When the scientific method we have been describing was brought into the problems of psychology, it was recognized that association could not be maintained as the fundamental principle in terms of which they might be solved. We speak naturally of certain elements as associated with each other. Why are certain experiences associated rather than an indefinite number of others? When we come back to account for their strong association, we find we come back to attention, to interest. We are interested in certain connections, and these get fixed in our minds. We give our attention to certain elements in experience, and that fixes them in the order in which they occur. But association is itself something that needs to be explained. Why is there selection in experience? Consciousness is selective; we see what we are looking for. There is a character of conduct about experience that determines what the relations are to be, or at least determines between what elements the relations are going to lie. This

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recognition of the importance of conduct as determining what the connections shall be within experience itself is the characteristic of the latter psychology. It has gone under various names.

The older psychology was structural. That is, it took experience as we find it to pieces and found certain relations between the various elements of it. These it explained through association. The latter psychology is functional rather than structural. It recognizes certain functions of conduct. We get experiences of distant objects, and their import for us lies in what we are going to do about them. We are hungry, and we set about getting food. We have become stifled with the air in the room, and we get out-of-doors. We are acting, and in our actions we determine what the relations are going to be between the various elements in experience. The structure of the act is the important character of conduct. This psychology also is called motor psychology, as against the older psychology of sensation; voluntary psychology, as against the mere association of ideas with each other. Finally, the development of these different phases got expression in behavioristic psychology, which gives itself to the study of this conduct to which I have referred. It undertakes to approach the mind from the point of view of the action of the individual. As a psychology, behaviorism has turned away, then, from the category of consciousness as such. Accounts of consciousness had been largely static in character. There were certain states of consciousness, certain impressions—the imagery men had in a spiritual substance that was impressed from without by certain experiences. The senses were the organs through which impressions were made on a substantial entity called "consciousness," and they were made in a certain way, in a spatial, temporal order. Consciousness was dealt with as a sort of substance which received impressions. Following upon this came the fruitful statement of Professor James.

For James, consciousness is not to be regarded as a static substance receiving impressions from without. It is rather a stream that flows on. And this stream has various characteristics, those that we express by its substantive and transitive

character. It gathers about a certain experience and then passes on from that to another. Another analogy that James used was of the bird that alights on one branch and then flies to another, continually moving from one point to another point. The transitive phases of experience are those answering to relations; the substantives are those that answer to what we call the "things we perceive." If one is speaking, relating something, and says "and" and then stops at that point, we have the feeling of being ready to go on to something else. The feeling is just as definite an experience as that of yellow or red, of hot or cold; it is an experience of "and," one that is transitive, that is moving on. And these experiences are qualitatively different from each other. If, instead of saying "and," the speaker said "but," we should have an entirely different attitude toward what is to follow. In fact, our whole grasp of what we are hearing or reading depends upon the feelings we have for these different relating articles. If we come upon a thought with a "though" in it, we have one attitude toward what is to come; if "also," a different attitude. We are ready for a certain sort of content. We have a definite sort of experience answering to these relations which appear immediately in experience.

There is also another very important phase of experience which Professor James emphasizes, that which is represented by the spotlight of our attention as over against the fringe of the experience. If one gives his attention to something immediately before him, there lies about this experience a fringe which is very important in the recognition, in the value of that to which one gives attention. For example, when we are reading, we often have the experience of a world which is not immediately before us. The eye in moving over the page has caught a word several lines below. We have to hunt for it to find out what it was. It lies there in the fringe of our immediate experience, and we are ready for it when it appears. But still more, these different attitudes which are connected with the different particles, the "and," "but," "though," "also," also represent the fringe. We are immediately considering something, but we are already going on to something else. And the beginnings of that some-

thing else to which we are going on are already forming in the realization of our experience. They are taking place, and they represent the fringe of experience which comes in to interpret that to which we are giving attention.

These conceptions of James's which were so fruitful for the psychological consideration of experience do represent definitely a process which gets its whole statement in our conduct. We are going on to something besides that which is before us. And the structure of the experience itself depends on what we are going on to do. If we see something, we have at least aroused in the organism a tendency to meet it, or to avoid it. And it is this experience of what the contact will be that comes in to give the meaning to that which we actually see. We are continually interpreting what we see by the something that is represented by possible future conduct. So, to understand what is appearing in experience, we must take into account not only the immediate stimulus as such but also the response. The response is there partly in the actual tendency toward the object and also in our memory images, the experiences that we have had in the past. And this relationship of the response to the stimulus is one of very great importance in the analysis of our perception.

Professor Dewey brought out that fact in a memorable article on the stimulus-response concept. He pointed out that the very attitude of being acted upon by a stimulus is continually affected by the response. We start to do something, and the process of doing it is continually affecting the very stimulus we have received. A familiar illustration is that of the carpenter who is sawing on a line. The response of the organism to the stimulation of the line is there to determine what he will look for. He will keep his eye on the line because he is continually sawing. The process of listening is a process in which we turn the head in such a way that we will be able to catch what we are hearing—the listening is essential to the hearing. The process of responding is always present, determining the way in which we shall receive our so-called "impressions." That is, the organism is not simply a something that is receiving impressions and then answering to them. It is not a sensitive protoplasm that is simply receiving these stimuli from without and then responding to them. The

organism is doing something. It is primarily seeking for certain stimuli. When we are hungry, we are sensitive to the odors of food. When we are looking for a book, we have a memory image of the back of the book. Whatever we are doing determines the sort of a stimulus which will set free certain responses which are there ready for expression, and it is the attitude of action which determines for us what the stimulus will be. Then, in the process of acting we are continually selecting just what elements in the field of stimulation will set the response successfully free. We have to carry out our act so that the response as it goes on is continually acting back upon the organism, selecting for us just those stimuli which will enable us to do what we started to do.

Out of this stimulus-response concept has developed behavioristic psychology. Now, there are two ways of elaborating the general point of view belonging to behaviorism. One is to consider the process itself in an external way, or, as the psychologists would say, in an objective fashion; just consider the act itself and forget about consciousness. Watson is the representative of that type of behaviorism. The behaviorist of this type is interested simply in the act. He is particularly interested in the act as it can be observed from the outside. Watson is representative of the so-called scientific psychologist who is observing that which can be observed by other scientists. It is a type of psychology which was developed first of all in the study of animals. There you are necessarily shut off from any so-called field of consciousness. You cannot deal with the consciousness of the animal; you have to study his actions, his conduct. And these psychologists carried over the method of animal psychology into human psychology. They carried over from the study of animal psychology a new and, what seemed to be, a very fruitful conception, that of the reflex which could be, in their terminology, conditioned—the idea of the conditioned reflex.

This goes back, as most of you know, to Pavlov's dog. Pavlov was an objective psychologist who was studying the conduct of animals and endeavoring to make a complete statement of that

conduct without bringing in the element of consciousness, that is, without having to refer to what was called "introspection" to understand the act. He took a dog and, by putting food in its mouth, collected the saliva that was secreted. If a piece of meat was brought within the vision and the sense of odor of the dog, then saliva was secreted. The dog was all ready to eat the meat, and the glands in the mouth were preparing for the process of mastication. Now, taking the dog in that way and bringing the meat, he was able to determine just what the effect of this stimulus was in the production of saliva. Then, when he brought the meat to the dog, he also rang a bell. He kept this up long enough so that the two experiences would be associated. He did not speak of it as the consciousness of the dog but in terms of the process of the nervous system; and then he found that, if he rang the bell without presenting meat, the same effect was produced, that is, the excess of saliva was secreted without actual sight or odor of the meat. This particular reflex, then, the secretion of saliva, was conditioned by the association of the sound of the bell with the smell of meat, so that, when the meat was not presented, the sound of the bell actually acted as a stimulus in place of the smell of the meat itself.

This conception of conditioned reflex is evidently one that can be carried over into all sorts of fields. I will refer to some of them by way of illustration. First, take the cry of a baby who, for example, is shown a white rat with which he has played before without any fear. If the rat was associated with a loud sound, the sound, especially if not seen, was a natural stimulus of fright. If the white rat was presented to the child when this sound was produced, the child became frightened; and afterward, when the rat was brought to the child and the sound not made, the child was still frightened of the rat. That is, this particular reflex of the fright of the child was conditioned by the sight and feel of the white rat. This can be carried over to a whole set of situations. Take another example from our conventions. We expect a person to act in a certain sort of way. We expect him to be dressed in a certain sort of way. This conduct goes along with a certain type of manners, and these man-